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Social Inequalities in Health:
An Institutional Perspective

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Social Inequalities in Health:
An Institutional Perspective

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Abstract

Social Inequalities in Health: An Institutional Perspective

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Since the mid-20th century, U.S. healthcare policies have required working-age adults to access health insurance through labor market, marriage, and family institutions. These policy arrangements helped employed, married, and parenting adults gain coverage through the benefits derived from their institutional attachments, but offered unemployed, unmarried, and childless adults little protection against the risk of being uninsured. As the pathways expected to provide access to health insurance are themselves highly stratified, coverage was systematically lower for certain segments of the population, including: men, people of color, and adults with low levels of formal schooling. Recent changes to U.S. healthcare policy prompted by the passage of the Patient Protection and Affordable Care Act (ACA), however, provide adults with a new pathway for obtaining health insurance *decoupled from* their labor market, marriage, and family attachments.

By introducing a new route for adults to obtain health insurance outside of stratifying institutions, the ACA provides a history opportunity to consider the institutional determinants of health and draws attention to the centrality of institutions for our knowledge of health inequalities. I therefore leverage the timing of the ACA's

implementation as a "natural experiment" to investigate how institutions affect health. In three substantive chapters, I use data from the National Survey on Drug Use and Health (NSDUH) to explore the extent to which institutions generate inequalities in outcomes related to health insurance, health care, and health status.

Results from these studies show that the ACA produced a number of desirable outcomes in just the first three years following implementation of its key provisions. First, the ACA helped close longtime gaps in health insurance coverage across gender, race and ethnicity, and education. Second, previously uninsured adults experienced substantial improvements in health care and health status. Third, the ACA exhibited large and profound benefits for low-income men with a history of incarceration. Together, these results demonstrate how the ACA raised the floor of health by improving a variety of outcomes for the population's most disadvantaged groups. In the context of a dramatic and precarious shift in the U.S. healthcare system, this dissertation also has significant methodological and policy relevance.

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Chapter 1:

Introduction

My dissertation explores the multiple ways that institutional processes structure disparities in health, with an emphasis on how inequalities arise across gender, race and ethnicity, and education. My approach to this work reflects my unique training in sociology, criminology, and demography. Unlike most health researchers who commonly point to proximate, horizontal mechanisms to explain how different social groups experience varying levels of health, I draw attention to the ways that these social determinants of health are shaped by more distal, organizational properties of society to address deeply theoretical questions left unresolved in existing studies. In doing so, I strive to develop a body of research establishing institutions as determinants of health by illuminating the structural forces under which various sociodemographic factors come to predict health outcomes in the population.

The empirical puzzle motivating this dissertation is the positive relationship between health and incarceration observed in the U.S. criminal justice system. Despite entering jails and prisons with significantly higher and more severe levels of illness and disease than the general population, individuals who are incarcerated often have lower mortality and longer life expectancies than their counterparts on the outside (Patterson 2010; Spaulding et al. 2011). The health benefits associated with incarceration are fleeting, however, as most formerly incarcerated individuals face exacerbated health issues almost immediately upon their release (Binswanger et al. 2007). Though

researchers share a consensus on the empirical findings concerning the relationship between health and incarceration, there is less agreement about its causes. Some scholars have argued that the provision of health care to individuals who would otherwise be without it plays a key role in the health benefits associated with incarceration (Patterson 2010). Our ability to explore the effects of health care on the health benefits of incarceration, however, has been severely limited because adults involved in the criminal justice system have historically had very little access to health care outside the gates of correctional facilities.

Since the mid-20th century, U.S. healthcare policies have required working-age (18-64) adults to access health insurance through labor market, marriage, and family institutions (Seccombe 1993; Meyer and Pavalko 1996; Currie and Madrian 1999). These policy arrangements helped employed, married, and parenting adults gain coverage through the benefits derived from their institutional attachments, but offered unemployed, unmarried, and childless adults little protection against the risk of being uninsured. As the pathways expected to provide access to health insurance are themselves highly stratified, coverage was systematically lower for certain segments in the population, including: men, people of color, and adults with low levels of formal schooling. What uninsured men of color with low levels of formal schooling often also share in common is a history of incarceration. In 2009, over one-third of uninsured men with 12 or less years of formal schooling had spent time in jail or prison (Regenstein and Rosebaum 2014). Recent changes to U.S. healthcare policy prompted by the passage of the Patient Protection and

Affordable Care Act (ACA), however, provide adults with a new pathway for obtaining health insurance decoupled from their labor market, marriage, and family attachments.

As the ACA provides adults with a new route to coverage outside of stratifying institutions, previous inequalities in outcomes related to health insurance, health care, and health status may drastically change. Changes to the distribution of such health-related outcomes in the population raise important questions about the underlying determinants associated with health. In general, researchers account for a combination of material, psychosocial, behavioral, and biological factors to explain health outcomes. These approaches can help us understand why some people have better or worse health than others when compared within societies, but they are of more limited use when we fail to consider how important individual- or household-level causes linked to health vary in their frequency or in their effects across institutional contexts (Olafsdottir 2007; Beckfield et al. 2015). Thus, our existing understanding of social inequalities in health may be predicated on a specific distribution of the social determinants of health and a set of material, psychosocial, behavioral, and biological factors that vary accordingly. By introducing a dramatic policy change to the U.S. healthcare system that separates access to health insurance and, hence, health care from the institutional attachments of adults, the ACA provides a historic opportunity to consider the institutional determinants of health and draws attention to the centrality of institutions for our knowledge of health inequalities.

In this dissertation, I leverage the timing of the ACA's implementation as a "natural experiment" to investigate how institutions affect health. The three substantive

chapters explore the extent to which institutions generate inequalities in outcomes related to health insurance, health care, and health status, and considers how these inequalities can be modified through changes to the U.S. healthcare system introduced by the ACA.

Chapter 2, "The Institutional Determinants of Health Insurance: Moving away from Labor Market, Marriage, and Family Attachments under the ACA," examines whether and how the ACA changes the relationship between institutional attachment—that is, the effects of being employed, married, or parenting—and health insurance among adults. The results show that the salience of labor market, marriage, and family attachments as pathways to coverage significantly declined in the first three years following the passage of the ACA. By providing adults with a new route to coverage decoupled from their institutional attachments, the ACA helped to narrow health insurance inequalities across gender, race and ethnicity, and education. Given the strong association between health insurance and health outcomes, the results from this study raise important questions about the centrality of institutions for our knowledge of health inequalities.

Chapter 3, "The Institutional Determinants of Health: An Update to our Understanding of Social Inequalities in Health in the United States," considers how institutions affect outcomes related to health care and health status. The results from this study show that systematically uninsured and medically underserved groups, including men, people of color, and individuals with low levels of formal schooling experience large and profound benefits from the ACA. Along with other, more advantaged adults, these groups have reduced their use of acute care in emergency department and hospital

inpatient settings in lieu of making use of routine care in regular health care settings. Social inequalities in many chronic health conditions have subsequently declined since the passage of the ACA. By demonstrating the multiple ways that the ACA has helped to improve health care and health status outcomes among groups with the worse health profiles in the country, this study provides evidence of a potentially very simple explanation of social inequalities in health: that the equal provision of health insurance engenders a cascade of health benefits that ultimately reduce social inequalities in health.

Chapter 4, "Health Care beyond the Gates: Investigating the Effects of the ACA on Health-Related Outcomes of Previously Incarcerated Men," aims to enhance our understanding of the relationship between incarceration and health. A growing body of literature provides evidence on the relationship between incarceration and health but less is known about the underlying mechanisms that connect them (Wildeman and Mueller 2012). Some scholars argue that the provision of health care provided by the criminal justice system is the primary factor responsible for the paradoxically positive health effects of incarcerated observed among inmates behind bars (Patterson 2010). Our ability to explore this hypothesis, however, has been severely limited because formerly incarcerated adults have been systematically deprived of health care outside the gates of correctional facilities (e.g., Mallik-Kane and Visher 2008). In this study, I consider how the ACA affects previously incarcerated men. Results from this study show that the ACA is making significant and substantive improvements in outcomes related to health insurance, health care, and health status in the lives of men with a history of incarceration. This study makes a significant contribution to our knowledge of the

relationship between incarceration and health, and, in the context of a dramatic shift in the U.S. healthcare system, draws attention to the institutional determinants of health.

In each study of the three substantive chapters, I use data from the National Survey on Drug Use and Health (NSDUH). The NSDUH is a nationally representative, cross-sectional survey of the non-institutionalized population in the U.S. conducted annually by the Substance Abuse and Mental Health Services Administration (SAMHSA). For at least two reasons, data from the NSDUH are particularly useful for this dissertation.

First, data from the NSDUH are important for studies exploring health-related outcomes in the context of the ACA because the survey identifies and oversamples populations who share characteristics with those outside of traditionally insured groups. For example, through its use of an independent, multistage area probability sample of all states and the District of Columbia, the NSDUH was designed to oversample young adults ages 18 to 25, Blacks, Latinos, and residents of rural areas (Gfoerer, Larson, and Colliver 2007). To promote their inclusion in the survey and to accommodate the cultural and linguistic needs of the Latino population, interviews are available in both English and Spanish (Kennet and Gfoerer 2005). The NSDUH also prioritizes the inclusion of harder-to-reach populations by surveying individuals living in non-institutionalized group quarters and temporary housing, including shelters, college dormitories, migratory worker camps, and halfway houses (SAMHSA 2017).

The NSDUH further stands out as a unique and effective dataset for this dissertation because of its collection of data on involvement with the criminal justice

system. Questions gather information on the extent to which respondents have been involved with the criminal justice system through arrest, incarceration, probation, and parole. All questions ask respondents to report on their contact with the criminal justice system in their lifetime and in the preceding 12 months. Thus, the data permit an analysis of the critical period of prisoner reentry with respect to health outcomes. Additional information on the NSDUH is provided in the substantive chapters.

Chapter 2:

The Institutional Determinants of Health Insurance: Moving away from Labor Market, Marriage, and Family Attachments under the ACA

Introduction

Central to sociological research is an understanding of how institutions generate inequalities by sorting and ranking individuals in ways that shape and reinforce group advantages and disadvantages. This understanding has inspired a large and growing body of literature emphasizing the role of institutional stratification to explain inequalities, such as those found in education (Grodsky, Warren, and Felts 2008), income (Western and Rosenfeld 2011), and occupational attainment (Xie, Killewald, and Near 2015). Despite these contributions, less attention has been given to relating institutional stratification to inequalities in health (Beckfield and Krieger 2009; Bambra et al. 2010). The lack of research in this area is especially surprising in the U.S. context where recent reform to the country's healthcare system has potentially transformed how stratifying institutions shape the distribution of health insurance—a key determinant of health care and, ultimately, health—among the population of working-age adults.

Since the mid-20th century, U.S. healthcare policies required working-age adults to access health insurance through labor market, marriage, and family institutions (Seccombe 1993; Meyer and Pavalko 1996; Currie and Madrian 1999). These policy arrangements helped employed, married, and parenting adults gain coverage through the benefits derived from their institutional attachments, but offered unemployed, unmarried,

and childless adults little protection against the risk of being uninsured. As the pathways expected to provide access to coverage are themselves highly stratified, the risk of being uninsured was greater for men, people of color, and adults with lower levels of formal schooling than it was for women, Whites, and those with higher levels of education. Recent changes to U.S. healthcare policy prompted by the passage of the Patient Protection and Affordable Care Act (ACA), however, provide adults with a new pathway for obtaining health insurance *decoupled from* their labor market, marriage, and family attachments.

As the ACA provides adults with a route to coverage outside of stratifying institutions, previous health insurance disparities may drastically change. The narrowing of health insurance inequality is an important research and policy concern because uninsured adults experience worse health outcomes and shorter life expectancies than do adults with coverage (Institute of Medicine 2002). Expanding health insurance is expected to improve the health disadvantages of uninsured adults by enabling access to more and higher-quality health services (Hadley 2003; Freeman et al. 2008; Levy and Meltzer 2008; McWilliams 2009). Thus, the passage of the ACA provides an opportunity to carefully consider the institutional determinants of access to health care and raises important questions about the centrality of institutions for our knowledge of health inequalities in the U.S. context. Nevertheless, remarkably little research has investigated the extent to which the ACA affects how institutions shape disparities in coverage.

Addressing this gap in our knowledge, this study asks: how does the ACA influence the relationship between institutional attachment and health insurance coverage

among adults? Further, how do changes in this relationship vary across sociodemographic groups? To explore these research questions, I use data from the National Survey on Drug Use and Health (NSDUH) that uniquely allow me to assess the level of health insurance coverage among adults from before and after the ACA became active in 2014. Emphasizing labor market, marriage, and family attachments as key determinants of health insurance, I first compare whether and how the ACA differentially affects health insurance coverage for adults with and without these attachments. Emphasizing institutional attachment as an important mechanism of stratification, I then examine the extent to which the ACA's influence on shifts in coverage contributes to sociodemographic disparities in health insurance.

By investigating stratification in labor market, marriage, and family institutions to explain inequalities in health insurance, and by introducing the ACA as a new mechanism of healthcare coverage for unemployed, unmarried, and childless adults, this article aims to broaden conceptualizations of the determinants associated with health. From a policy perspective, this research also provides an important snapshot of the short-term impacts of the ACA that may endure in the long run. The analysis makes use of the most recently available data, accounting for the first three years of change in the distribution of health insurance coverage since the implementation of the ACA in 2014. By the end of this period (December 2016), about 12% of adults remained uninsured (Current Population Survey (CPS) 2017). According to projections from the Congressional Budget Office (CBO), the share of adults without health insurance is expected to stay at this level in the years ahead (CBO 2018).

The current political climate, however, casts doubt over the ACA's future. Nonetheless, uncovering how institutional pathways produce inequalities in health insurance and identifying how policy changes modify these linkages remains critically important. As the ACA builds on, rather than eliminates, the traditional structuring of health insurance, most people will continue accessing health insurance through existing institutional pathways despite the passage of the ACA (Rosenbaum 2011; Quadagno 2010). The extent to which these pathways will remain accessible in the future, however, is unclear given how the transition to adulthood in the U.S. has become increasingly precarious and prolonged in recent decades (Shanahan 2000; Mayer 2004; Kohli 2007). Understanding how the ACA affects health insurance coverage among adults therefore has the capacity to deepen and advance our knowledge of population disparities in health, and, in the context of a dramatic and precarious shift in the U.S. healthcare system, has significant theoretical and policy relevance.

Institutional Stratification

The foundation for this research is based on the sociological understanding of how institutions influence inequality and shape life chances by sorting and ranking individuals into hierarchically-arranged categories (Esping-Andersen et al. 2002). This perspective emphasizes how institutions are consequential for wellbeing given their role in connecting individuals to opportunities and resources throughout the life course (Piketty 2000). Here, institutions represent organizations or formal structures that "provide stability and meaning to social life" by structuring the timing, duration, and sequencing of normative life-course transitions (Scott 2008:428). In facilitating these

transitions, institutions grant individuals some degree of social and material power that regulates their movement from one institution to the next (Mayer 2004).

Institutions therefore exist interdependently and function collectively to classify individuals in ways that determine their likelihood of making transitions at various stages of the life course. As a result, institutions—like school, work, marriage, and family—shape the pathways people's lives can take. Some pathways "…provide future opportunities and chances for upward mobility…while others effectively block promising avenues irrespective of individual efforts" (Elder and Shanahan 2006:680). By channeling individuals on pathways that often reflect their original location in the social hierarchy, institutions not only create new forms of inequality but also reinforce existing inequalities (Tilly 1998). The effects of institutional stratification thus compound and multiply over the life course with radiating consequences for inequality (Merton 1968; Dannefer 1987, O'Rand 1996).

The Institutional Determinants of Health Insurance

Institutional stratification generates significant implications for inequalities in health care (Bambra et al. 2010; Beckfield et al. 2015). A fundamental aspect to accessing care is health insurance, the provision of which is a prominent feature of all advanced-industrialized welfare states (Korpi and Palme 1998). In most advanced-industrialized nations, access to health care is equally distributed as a social right of citizenship through universal health insurance programs (Esping-Andersen 1990, Bambra 2005). Healthcare access in the U.S., by contrast, is distinctively unequal (Quadagno

2005). Without a universal healthcare program, U.S. citizens do not share an entitlement to healthcare coverage or a requirement to be covered (Hacker 2004).

Research focusing on cross-national differences within the club of advanced industrial countries, or "rich democracies" (Wilensky 2002), consistently ranks the health of adults in the U.S. at or near the bottom across a broad range of outcomes (Korpi and Palme 1998; Navarro and Shi 2001; Coburn 2004; Banks et al. 2006; Navarro et al. 2006; Chung and Muntaner 2007; Lundberg et al. 2008; Avendano et al. 2009; Kangas 2010; Woolf and Aron 2013). The gap in health between adults in the U.S. and their peers in other countries is especially pronounced when comparing deaths amenable to medical care—suggesting that differences in the availability of health insurance explain at least part of the health disadvantages experienced by U.S. adults (Mackino, Starfield, and Shi 2003; Wolf-Maier et al. 2004; Banks et al. 2006; Blackwell et al. 2009; Braveman et al. 2010; Nolte and McKee 2008, 2012). Compared to their peers in countries with universal health insurance coverage, adults in the U.S. are more likely to delay recommended care, to forego needed care because of cost, and to experience serious problems paying medical bills (Schoen et al. 2010). Given their relatively poor access to care, adults in the U.S. receive fewer routine screening and preventive services, experience worse continuity of care, and make greater use of care in emergency department settings (Avendano et al. 2009; Schoen et al. 2010; Crimmins, Preston, and Cohen 2011; Bezruchka 2012; Nolte and McKee 2008, 2012; Avendano and Kawachi 2014).

Unlike most high-income countries that have long provided healthcare benefits as a right of citizenship, the U.S. has historically relied on a market-based system to deliver

health care (Esping-Andersen 1990). This configuration of the welfare state treats health insurance as a commodity, requiring individuals and their families to access coverage largely through the labor market (Bambra 2005). Access to health insurance in this system is therefore made available predominately through private sources and minimally through public programs.

Accordingly, the primary way adults in the U.S. receive health insurance is by purchasing coverage in the private market through an employer-sponsored group plan (Fronstin 2007, 2012). In 2009, almost half (48%) of the adult population with health insurance received coverage through their own employer-sponsored plans. An additional 28% of insured adults received coverage from employer-sponsored plans as a dependent on the health insurance policy of a family member or a spouse. Together, employer-sponsored plans provided coverage to over 70% of insured adults (CPS 2010). Adults without access to employer-sponsored health insurance are able to purchase individual coverage in the private, "nongroup" market, but this coverage is both more expensive and more difficult to obtain than employer-sponsored coverage (Pauly and Percy 2000). In 2009, only about 7% of adults were insured this way (CPS 2010).

For individuals unable to obtain private coverage either through an employer or through an individually-purchased plan, access to public programs has historically been limited to only certain qualifying groups (Starr 2013). Non-disabled adults have been mostly prohibited from being covered through public health insurance except for under strict circumstances. Pregnant women and parents with dependent children have been eligible to qualify for Medicaid, but only by meeting very low income requirements—

often below half the poverty level (Davidoff, Yemane, and Adams 2005)[1]. Access to Medicaid for adults without dependent children has been even more limited. In 2009, childless adults with income below the poverty line were eligible to qualify for coverage comparable to Medicaid in only five states (Artiga and Schwartz 2009). Because of such stringent eligibility criteria, only about 12% of adults received Medicaid coverage before the introduction of the ACA (CPS 2010; Cohen and Martinez 2012).

The commodified approach to health insurance provision in the U.S. generates two additional empirical observations that are important for understanding disparities in coverage prior to the ACA. First, U.S. healthcare policies have guaranteed near-universal health insurance coverage for elderly adults (ages 65 and older) (Currie and Gruber 1996) and children (under age 18) (Martinez and Cohen 2012) but have traditionally failed to protect working-age adults (ages 18-64) from the risk of being uninsured. As shown in Figure 2.1, health insurance coverage among adults peaked in the early 1980s and declined through the first decade of the 2000s, as employer contributions toward the cost of coverage declined, the nature of the employment contract became more tenuous, and the economy stagnated (Gruber 2000; Farber and Levy 2000; Currie and Yelowitz 1999; Buchmueller and Monheit 2009). Trends in the insured rates of working-age adults who rely on employer-sponsored policies, spousal coverage, or programs targeting parents contrast sharply with those of groups guaranteed coverage through government-supported plans.

Also shown in Figure 2.1, coverage rates among those over age 65 increased dramatically after amendments to the Social Security Act introduced Medicare in 1965

such that by 2009, 99% of the elderly population had coverage (see also Cohen and Martinez 2012; Davis, Schoen, and Bandeali 2015). Similarly, children under age 18 witnessed increases in insurance coverage through the creation of the State Children's Health Insurance Program (SCHIP) that was signed into law as part of the 1997 Balanced Budget Act (LoSasso and Buchmueller 2002; Aizer 2007). Immediately prior to the passage of the ACA, over 90% of children under age 18 had some form of health insurance (see also Cohen and Martinez 2012).

Second, access to health insurance among adults in the U.S. is highly stratified. The insured rates of adults by gender, race and ethnicity, and education prior to the passage of the ACA are shown in Table 2.1. According to Table 2.1, 78% of adults living in U.S. households had health insurance in 2009. While over 80% of women were insured, the same was true for only three-quarters of men. More than 84% of Whites had coverage, compared to 73% of Blacks and 57% of Latinos. Health insurance coverage varied widely by education. Only 58% of those with less than a high school diploma had health insurance in 2009 compared with insurance rates of over 90% for those who completed college.

Table 2.1 also shows the mechanisms by which adults across sociodemographic groups received health insurance coverage prior to the implementation of the ACA. Just over 39% of women with health insurance gained coverage through their employers compared with 57% of insured men. Marriage is a greater source of coverage for women than for men (Levy 2007; Patchias and Waxman 2007). Women are also more likely than men to be insured by Medicaid due to their greater likelihood of qualifying for this source

of coverage as parents of dependent children (Davidoff et al. 2005). Employment is the primary source of coverage for all racial and ethnic groups, although the relative importance of other sources varies. The sources of coverage obtained by adults also vary substantially across levels of education. Higher levels of education are positively correlated with accessing health insurance through employment or marriage, while lower levels of formal schooling increase the chances of securing coverage through the state.

Decoupling Health Insurance from Stratifying Institutions

The introduction of the ACA has fundamentally restructured the availability of health insurance for U.S. adults. Unemployed, unmarried, childless adults—who are U.S. citizens or who otherwise have authorized residency—may now be eligible for coverage through two pathways newly established by the ACA (Fried, Pintor, Graven, and Blewett 2014). The first pathway is through the Medicaid expansion, which increased the eligibility criteria for Medicaid coverage to adults with annual household income levels up to 138% of the federal poverty line (FPL) (Wachino, Artiga, and Rudowitz 2014). The second pathway is through the creation of the Health Insurance Marketplace (Marketplace), which is a service that allows individuals to compare and purchase private insurance plans. To help individuals pay for health insurance purchased through the Marketplace, the ACA offers monthly subsidies to individuals with annual household income levels up to 400% of the FPL (Garfield, Licata, and Young 2014).

Though policymakers intended to implement the ACA uniformly across the states, the U.S. Supreme Court ruled the federal mandate to expand Medicaid as unconstitutional—giving states the option to participate in the expansion (Shaw et al.

2014). Accordingly, when the ACA went into effect on January 1, 2014, an estimated 4.8 million adults fell into a "coverage gap," wherein their income would have qualified them for Medicaid under the ACA's new eligibility rules, but their state declined to expand Medicaid (Wachino et al. 2014). Nevertheless, the ACA qualified nearly 30 million uninsured adults for partially or completely subsidized health insurance on January 1, 2014 (Garfield et al. 2014) [2]. The number of adults newly eligible for health insurance has also continued to grow since then, with many states adopting the Medicaid expansion after initially opting out. Recent reports estimate the number of adults left in the coverage gap at about 2.4 million (Garfield and Damico 2017).

Hypotheses

The aims of this investigation involve determining whether and how the ACA affects the relationship between institutional attachment and health insurance for the betterment of sociodemographic disparities in coverage. The remaining investigation is guided by the following hypotheses: (1) The ACA provides a new pathway to coverage that will affect the relationship between other types of institutional attachment—that is, the of effect of being employed, married, or parenting—and health insurance among adults, controlling for a host of sociodemographic and health characteristics that could be associated with both attachment and coverage. Because the new pathway to coverage provided by the ACA is designed for people without access to health insurance through labor market, marriage, and family institutions, the resulting evidence related to Hypothesis 1 tests if the ACA is working as intended.

(1a) Given that employer-sponsored health insurance was the primary path to coverage before the ACA, increases in coverage will be greatest among adults *unattached* to the labor market. (2) The ACA will reduce previously observed sociodemographic disparities in coverage. (2a) Because women have historically had a more diverse set of pathways to health insurance (Monheit, Schone, and Taylor 1999), men will exhibit greater increases in coverage after the implementation of the ACA. (2b) Due to their concentrated risks of being unmarried (Cherlin 2010), the ACA will lead to decreased disparities in coverage between Whites and Blacks attributable to increases in coverage among Blacks who are unmarried. (2c) Given concentrated risks of unemployment among those with low levels of completed education (Xie, Killewald, and Near 2015), and the strong relationship between employment and coverage (Driscoll and Bernstein 2012), the ACA will reduce health insurance disparities between adults who completed college and those with less than high school levels of education by increasing coverage among adults with low levels of formal schooling *unattached* to the labor market.

Data

In order to investigate the impact of the ACA on routes to and disparities in health insurance coverage, I use data from the National Survey on Drug Use and Health (NSDUH). The NSDUH is a nationally representative survey of the non-institutionalized population in the U.S., conducted annually by the Substance Abuse and Mental Health Services Administration (SAMHSA). Previous research on health insurance often makes use of other data sources, like the CPS, but data from the NSDUH are particularly useful for investigations on health insurance access in the context of the ACA because the

survey identifies and oversamples populations who share traits with institutionally unattached and traditionally uninsured adults.

For example, through its use of an independent, multistage area probability sample of all states and the District of Columbia, the NSDUH was designed to oversample young adults ages 18 to 25, Blacks, Latinos, and residents of rural areas (Gfoerer, Larson, and Colliver 2007). To promote their inclusion in the survey and to accommodate the cultural and linguistic needs of the Latino population, interviews are available in both English and Spanish (Kennet and Gfoerer 2005). The NSDUH also prioritizes the inclusion of harder-to-reach populations by surveying individuals living in non-institutionalized group quarters and temporary housing including shelters, college dormitories, migratory worker camps, and halfway houses (SAMHSA 2017).

This study relies on samples of the adult population drawn from before and after access to health insurance was transformed by the ACA. The ACA mandated several major changes to the U.S. healthcare system, but the reforms related to this research include only the creation of the Health Insurance Marketplace and the Medicaid expansion. These policy changes are considered the most comprehensive reforms of the ACA and were intended to make health insurance accessible for all U.S. citizen adults (Garfield et al. 2014).

The ACA was enacted in 2010 and was designed to roll out its reforms on the U.S. healthcare system over four years and beyond. The enrollment period for new insurance plans through the Marketplace began in 2013, but the benefits of this coverage did not become active until January 1, 2014. Likewise, individuals newly eligible for

Medicaid could begin their enrollment in 2013 but could not access their benefits until January 1, 2014 (Wachino et al. 2014). In view of this timing, I treat 2013 as a washout period that was excluded from analyses and defined the period *after* adults' access to health insurance was transformed by the ACA as January 2014 through December 2016 (*post-ACA* study period). To include the period before the ACA was signed into law in 2010, and to appropriately compare years close together in time, I defined the period *before* access to health insurance among adults was transformed by the ACA as January 2009 through December 2012 (*pre-ACA* study period).

The analytic sample consists of adults between 18 and 64 years of age who reported their race and ethnicity as non-Hispanic White ("White"), non-Hispanic Black ("Black"), or Hispanic or Latin origin of any race ("Latino"). In order to account for only those whose access to health insurance was transformed by the ACA, the sample excludes adults who reported they were currently disabled or pregnant. Respondents from the cross-sectional waves of the 2009-2012 NSDUH data make up the sample in the pre-ACA period, (n = 130,989) while those from the 2014-2016 waves comprise the sample in the post-ACA period (n = 104,837). Excluding adults classified as disabled or pregnant, as well as those whose racial and ethnic identity was outside of White, Black, and Latino categories, left out 9% (n = 21,084) of the total sample of adults between the ages of 18 and 64 (n = 235,826). Results including all respondents are substantively identical to those presented here and are available upon request.

Measures

The outcome of interest is the likelihood of being *uninsured*, which I measure using a single binary variable that indicates whether a person did (0) or did not (1) have health insurance coverage in the past year. I classify individuals as being uninsured if they reported being without health insurance at the time of the interview, based on their responses to a set of questions asking about their state of coverage across multiple different plans. Individuals are also classified as uninsured if they answered affirmatively to a question asking: *during the past 12 months, was there any time when you did not have any kind of health insurance or coverage?* The uninsured measure is therefore representative of individuals in the study sample without yearlong, continuous coverage of any kind, and is based on information gathered from questions asked to respondents in the same way each year of the study period.

The key explanatory variables measure *institutional attachment*. I conceptualize institutional attachment as connections to labor market, marriage, and family institutions that provide opportunities to access to health insurance. I construct three dummy variables to measure these concepts separately. Individuals are coded as attached to the *labor market* if they indicate full-time employment in the study year. I also code those reporting full-time enrollment in school and active duty military service as attached to the labor market to more carefully consider how those connections provide institutional attachments that grant access to health insurance. Legally recognized marriage confers unique benefits like access to health insurance provided through a spouses' employer (Hatzenbuehler et al. 2012; Doan, Loehr, and Miller 2014; Gonzales and Blewett 2014).

Therefore, I construct a variable *marriage* to distinguish respondents who report being married from all other union statuses. The variable *family* measures if the respondent is a custodial parent of at least one child under age 18, a status that provides privileged access to state-supported health care (Holahan, Kenney, and Pelletier 2010; Huberfeld 2015). The *overall* institutional attachment variable is a single binary measure that estimates the effects of having any of these institutional connections: being employed or enrolled in school or in the military on a full-time basis, married, or a custodial parent of at least one of their own children under age 18.

To control for the confounding effects of factors related to the outcome of interest, I also account for a battery of sociodemographic traits and health status measures in the analyses. These covariates include individual measures of gender, race and ethnicity, age, educational attainment, receipt of government assistance, household income, self-rated health (SRH), and the incidence of a chronic health condition. In addition to being included in the set of control variables for the analyses addressing how the ACA influences the relationship between institutional attachment and health insurance coverage, the variables measuring gender, race and ethnicity, and educational attainment are also used to examine the extent to which the ACA's influence on the effects of institutional attachment reduces sociodemographic disparities in coverage among adults. The qualitative descriptions and coding schemes for the sociodemographic traits and health status measures mentioned here, as well as the weighted means of these variables in the pre- and post-ACA study periods are shown in Table 2.2.

Methods

To address the first research question on whether and how the ACA influences the relationship between institutional attachment and health insurance coverage among adults, I leverage the timing of the ACA as a "natural experiment" using a "difference-in-differences" (DID) framework. The basic approach in a DID analysis is to compare the difference in outcomes between a treatment group and a control group at time points before (difference 1) and after (difference 2) a policy intervention. Average changes over time in the outcomes of the control group are then subtracted from average changes over time in the treatment group (difference 2 – difference 1). This double differencing technique removes the effect that could result from permanent differences between the two groups as well as the effect of changes over time in the treatment group unrelated to the intervention, thus substantially reducing the problems associated with omitted variables in cross-sectional analyses (Card and Krueger 1993).

DID methods are considered a powerful tool for estimating the effects of policy interventions that do not affect people at the same time or in the same way (Meyer 1995) and are used widely in the area of policy and program evaluation (Angrist and Pischke 2010). This strategy has become especially popular in research on health policy (Angrist and Pischke 2010) and is recognized as the most common technique in the growing number of studies assessing the impact of the ACA (Cantor et al. 2012; Sommers and Kronick 2012; Antwi, Moriya, and Simon 2015; O'Hara and Brault 2013; Sonier, Boudreaux, and Blewett 2013; Barbaresco, Courtemanche, and Qi 2015; Frean, Gruber, and Sommers 2017).

In this case, I apply a DID framework to estimate changes in the likelihood of being uninsured among adults without institutional attachments (treatment group) from the pre- to post-ACA study period, relative to changes among adults with institutional attachments (control group). These contrasts are made through a series of multivariate logistic regression models designed to identify the effects of (1) *overall* institutional attachment, and then separately for attachments to (2) *labor market*, (3) *marriage*, and (4) *family* institutions on health insurance status before and after the introduction of the ACA. Regression models for each measure of institutional attachment are specified as follows:

$$logit(p_i) = \beta_0 + \beta_1 I_i + \gamma_0 T_i + \gamma_1 T_i \times I_i + \beta_2 X_{it} \quad (1)$$

$$logit(p_i) = \beta_0 + \beta_1 I_{LM_i} + \gamma_0 T_i + \gamma_1 T_i \times I_{LM_i} + \beta_2 X_{it} \quad (2)$$

$$logit(p_i) = \beta_0 + \beta_1 I_{Mar_i} + \gamma_0 T_i + \gamma_1 T_i \times I_{Mar_i} + \beta_2 X_{it} \quad (3)$$

$$logit(p_i) = \beta_0 + \beta_1 I_{Fam_i} + \gamma_0 T_i + \gamma_1 T_i \times I_{Fam_i} + \beta_2 X_{it} \quad (4)$$

where p_i represents the dichotomous outcome variable ($y = 1$ if uninsured, and $y = 0$ otherwise) for individual i at time T ($T = 1$ for the post-ACA study period, $T = 0$ for the pre-ACA study period). γ_1 is the treatment effect, reflecting the average changes over the study period in the attached group's likelihood of being uninsured, subtracted by these changes in the unattached group. X is a vector of the control variables.

The models differ by the measures capturing institutional attachment: I represents overall institutional attachment, while I_{LM}, I_{Mar}, and I_{Fam} measure attachments to labor

market, marriage, and family institutions, respectively. As indicated by their unique specifications, the sorting of the treatment (unattached) and control (attached) groups varies across models to account for the particular differences in the pathways connecting adults to health insurance. Refining the definition of the treatment and control groups is also considered an important strategy for providing a more robust analysis of policy changes estimated by DID methods (Slusky 2013). The results of these models (shown in Table 2.4) are therefore well-suited to identify the multiple entry points of the ACA as an intervention in the lives of uninsured adults.

To address the second research question on how changes in the relationship between institutional attachment and health insurance coverage varies across sociodemographic groups, I first compare whether and how the ACA differentially affects health insurance coverage for adults across gender, race and ethnicity, and education. I use the logistic regression coefficients from the DID models described in Equations 2, 3, and 4 to estimate the predicted probabilities of being uninsured for the four levels of the interaction terms measuring the joint effects of the ACA and institutional attachment, specified for each combination of gender, race and ethnicity, and education. This procedure allows me to compare the average probability of being uninsured for each group of adults with and without labor market, marriage, and family attachments across all sociodemographic groups. The estimated values for these probabilities are shown in Table 2.5.

I then perform a four-factor decomposition analysis to more closely illustrate the extent to which the ACA's influence on shifts in coverage contributes to

sociodemographic disparities in health insurance (Kitagawa 1955; Gupta 1993). This method, used widely in demographic and health studies (Boyd and Norris 2000; Wang et al. 2000) allows me to partition the total change in health insurance inequality between sociodemographic groups by changes in coverage observed among those with and without institutional attachments, while adjusting for differences in specific rates (Li and Kinfu 2015). For example, a comparison of Black-White disparities in coverage associated with marriage will yield the percent of the narrowing of the gap in health insurance caused by increases in coverage among married Whites, unmarried Whites, married Blacks, and unmarried Blacks. The results from this analysis are displayed in Figure 2.1 and the corresponding estimates used to produce these findings are available upon request.

Results

The share of adults living in the U.S. without health insurance dramatically declined in the years following the passage of the ACA. Table 2.3 shows that nearly 1 in 5 adults (19.7%) were uninsured in the pre-ACA study period. The share of adults without health insurance fell to 13.6% in the period following the implementation of the ACA, signifying a 31% decline in the uninsured rate for the total population of adults in the study sample. Table 2.3 further reveals that the decline in the rate of adults without coverage—or, the greatest increases in coverage—took place among the institutionally unattached. While adults unattached to labor market, marriage, and family institutions all saw increases in coverage, coverage gains were largest among individuals unattached to the labor market. The uninsured rate of adults unattached to the labor market dropped by

nearly 35% (from 27.7% to 18.1%). These results provide preliminary evidence in support of Hypotheses 1 and 1a. To test how these results withstand further scrutiny, I turn to the results in Table 2.4.

Consistent with the descriptive results shown in Table 2.3, findings presented in Table 2.4 show that the ACA significantly reduced the size of the relationship between institutional attachment and health insurance coverage. Table 2.4 reports the differences in the log odds of being uninsured between adults with and without institutional attachments. The first column reports this difference in the pre-ACA study period, the second column reports this difference in the post-ACA study period, and the third column reports the difference between the differences observed in the pre- and post-ACA study periods (the "differences-in-difference" or, "treatment effect"). Model 1 estimates these differences as they relate to the effect of *overall* institutional attachment. The results show that the odds of being uninsured were nearly 2.4 times ($e^{.888}$) greater among adults without any institutional attachments than among adults with one or more of the measured attachments to labor market, marriage, and family institutions in the pre-ACA study period. In the post-ACA study period, the odds of being uninsured were 60% ($e^{.462}$) greater among institutionally unattached adults. The ratio of the odds of being uninsured between adults with and without institutional attachments therefore fell by nearly 40% ($e^{-.425}$) from the pre- to post-ACA study period.

Models 2-4 estimate the differences in the log odds of being uninsured for adults with and without attachments to *labor market*, *marriage*, and *family* institutions, separately. These results provide evidence to identify *how* the ACA modifies the link

between institutional attachment and health insurance coverage among adults. The results from Model 2 show that, relative to their attached counterparts, adults unattached to the *labor market* had 90% ($e^{.643}$) greater odds of being uninsured in the pre-ACA period and 47% ($e^{.382}$) greater odds of being uninsured in the post-ACA study period, suggesting that the ACA decreased the effect of *labor market* attachment on health insurance coverage by 23% ($e^{-.261}$). Models 3 and 4 similarly provide evidence that the odds of being uninsured were greater for adults unattached to *marriage* and *family* institutions than for adults with such attachments, and that the uninsured gap between these groups narrowed substantially from the pre- to the post-ACA study period. As shown in Models 3 and 4 (Table 2.4), the ACA decreased the effects of attachments to *marriage* and *family* institutions on health insurance coverage by 10% ($e^{-.106}$) and 15% ($e^{-.158}$), respectively. Together with the descriptive results reported in Table 2.3, the results in Table 2.4 provide evidence in support of Hypothesis 1a, suggesting that changes in the relationship between institutional attachment and health insurance coverage were largest among adults unattached to the labor market.

All sociodemographic groups experienced a significant decline in their risk of being uninsured after the passage of the ACA. The top panel of Table 2.5 shows that in *absolute* terms men exhibited greater increases in coverage than women, Latinos witnessed greater increases than other racial and groups, and those with less than a high school diploma experienced greater increases in coverage than those with higher levels of formal schooling. *Relative* to coverage rates prior to the passage of the ACA, however, women experienced greater gains than men (34.1% decrease compared with 28.3%

decrease), Black experienced comparatively large decreases (33.6%), and adults who completed college exhibited the largest increase in coverage of all education groups. Taken together, these results provide evidence in support of Hypothesis 2 that the passage of the ACA will reduce previously observed sociodemographic disparities in coverage. The bottom panel of Table 2.5 shows that the gender gap in insurance declined nearly 5%, racial and ethnic differences in coverage declined roughly one-third, and educational gaps in coverage declined between 16% and 30%.

The passage of the ACA reduced the importance of labor market, marriage, and family attachments for stratifying access to health insurance. Table 2.6 demonstrates how the ACA impacted sociodemographic groups differently based on inequalities in institutional attachments and allows for more careful examination of Hypotheses 2a, 2b, and 2c. For example, Table 2.6 shows that the gender gap in insurance coverage declined in relation to all measured institutional attachments. The gender gap in coverage associated with institutional attachment fell by 19.2% in relation to the labor market, and declined similarly, from 36.5% to 38.1%, across marriage and family domains. Taken together, these findings emphasize the centrality of the intersection of gender and the labor market for stratifying access to health insurance coverage. Declines in the gender gap in coverage after the implementation of the ACA highlights men's historical dependence on labor market attachment as a route to coverage and a more diverse set of pathways to coverage for women rooted in the social acceptability of women as dependents and thus worthy of care (Skocpol 1992).

Reductions to racial and ethnic disparities in insurance coverage following the ACA were found in relation to all types of measured institutional connections as well. As anticipated by Hypothesis 2b, the declining significance of marriage for stratifying access to health insurance was particularly important for the narrowing of the Black-White gap in coverage. Prior to the passage of the ACA, Blacks experienced a lower likelihood of gaining coverage through marriage, relative to Whites (Montez, Angel, and Angel 2009). The racial gap in coverage was cut in half after the passage of the ACA, suggesting the declines in the health insurance privilege marriage provides to Whites. The ACA was associated with comparatively large absolute declines in Latino-White gaps in coverage across institutional domains. However, a high risk of being uninsured persists among Latinos, possibly because approximately one-third of these adults in the U.S. are not citizens who face unique barriers to health insurance as they are disproportionately less likely to work in jobs that offer employer-sponsored insurance, to qualify for Medicaid, and to take on coverage when eligible (Buchmueller, LoSasso, and Wong 2008; Bustamante et al. 2009; Bustamante and Chen 2012).

The ACA also helped smooth the education gradient in health insurance coverage. Consistent with Hypothesis 2c, the results demonstrate that the ACA's expansion of health insurance access decoupled from the labor market substantially reduced disparities in coverage between adults with lower and higher levels of education. As shown in Table 2.6, education differences in health insurance associated with the labor market fell between 17.1% and 30.0% across comparison groups. The salience of marriage and family attachments for education differences in health insurance coverage also declined

following the passage of the ACA. These results emphasize the ways that access to health insurance was more tightly coupled with status markers like high levels of education and the benefits derived from associated institutional attachments prior to the ACA. Observed changes in the relationship between education and health insurance coverage after the passage of the ACA may reduce inequality in access to health care, and health inequalities, in ways that are more comparable to other advanced industrial democratic countries with more generous welfare states (Bambra 2005, 2013; Olafsdottir 2007; Beckfield and Krieger 2009).

Sociodemographic differences in the relationship between health insurance and institutional attachment are produced by inequalities in the group-specific level of coverage among adults *with* attachments, as well as by inequalities in the group-specific level of coverage among adults *without* attachments. Figure 2.2 illustrates how group-specific changes in coverage contribute to health insurance disparities across sociodemographic and institutional categories generated by a two-factor decomposition analysis (Kitagawa 1955; Gupta 1993). The values in Figure 2.2 signify the percent of the narrowing of the gap in health insurance coverage associated with increased health insurance for each sociodemographic group.

Declines in sociodemographic disparities in health insurance coverage after the ACA are disproportionately caused by increases in coverage among those who lacked institutional attachments associated with coverage. For example, although the passage of the ACA was associated with increased coverage rates among employed *and* unemployed men and women, increases in health insurance coverage among unemployed men are

responsible for the largest portion (32%) of the decline in the gender gap in health insurance coverage associated with the labor market. Coverage increases among unattached men are similarly large in marriage and family domains (34% and 37%, respectively). Increases in coverage among married and parenting men contributed to the narrowing of the gender gap in health insurance coverage to a similar extent (34% and 35%, respectively). These results provide further evidence of the ways that the ACA has helped increase coverage among men by giving them a new route to coverage, outside of pathways characterized by dependency.

Results indicate similar patterns for Black adults who lack institutional attachments historically important for the provision of health insurance. Between 36% and 46% of the decline in the Black-White gap in healthcare coverage is the result of insurance gains of unattached Blacks. Figure 2.2 also shows that the smoothing of the education gradient in health insurance is attributable to gains in coverage among those with the lowest levels of formal schooling regardless of institutional attachment. These results highlight the ways that institutional attachment may be a particularly important pathway, or barrier, to health insurance for some groups in comparison with others. Nonetheless, these results reinforce the centrality of institutional attachments for understanding differential access to health insurance in the context of radical changes in health care policy in the United States.

Discussion & Conclusion

By embedding individuals in hierarchically-arranged positions over the life course, institutions represent important sites where inequalities develop and multiply.

Sociological literature emphasizing this process of institutional stratification to explain inequalities typically highlights the ways institutional attachment shapes crucial outcomes throughout the life course, including those related to educational attainment (Grodsky, Warren, and Felts 2008), income and wage earnings (Western and Rosenfeld 2011), and occupational status (Xie, Killewald, and Near 2015). This literature emphasizes how institutional attachment integrates people into society, creates opportunities for upward mobility, and provides sources of identity and meaning in people's lives. Sociologists therefore widely agree that institutional attachment is consequential for many positive life outcomes (e.g., Shanahan 2000; Mayer 2004; Elder and Shanahan 2006; Kohli 2007; Brayne 2014; Beckfield et al. 2015).

Here, I demonstrate that institutional attachment matters for another reason, under-examined in previous studies: health insurance. Traditionally, U.S. healthcare policies required adults to obtain coverage through their attachments to labor market, marriage, and family institutions (Seccombe 1993; Meyer and Pavalko 1996; Currie and Madrian 1999). Under these policy arrangements, employed, married, and parenting adults could gain health insurance through the benefits derived from their institutional attachments, while unemployed, unmarried, and childless adults were generally excluded from accessing coverage. Inequalities in the positions occupied by individuals across these institutions left nearly 40 million adults (1 in 5) uninsured and thereby vulnerable to health disadvantages (Levy and Meltzer 2008; Martinez and Cohen 2012). Implementation of the ACA, however, extended health insurance access to adults in ways unrelated to their preexisting institutional positions.

This unprecedented change in U.S. healthcare policy qualified nearly 30 million uninsured adults—approximately 75% of all adults without health insurance—as eligible for partially or completed subsidized health insurance, as of January 1, 2014 (Garfield et al. 2014). In doing so, the ACA transformed the relationship between institutional stratification and health insurance access among adults. This study showed that the ACA reduced the association between institutional attachment and health insurance among adults by nearly 40% and decreased the effects of attachments to the labor market, marriage, and family on health insurance coverage by 23%, 10%, and 15%, in that order. For unemployed, unmarried, and childless adults, the probability of being uninsured was cut in half as a result.

Results from this study provides an important snapshot view of the distribution of health insurance coverage among adults in the first three years following the ACA's implementation because the observed changes in health insurance coverage might endure in the years ahead as the uninsured rate of adults is expected to remain stable thereafter (CBO 2018). Even as the current political climate casts uncertainty over the ACA's future, results from this study remain critically important because the ACA builds on, rather than eliminates, the traditional structuring of health insurance. This study emphasized how most health insurance obtained by adults is still closely coupled to the labor market, despite the passage of the ACA. The extent to which adults maintain these attachments in the future, and the future availability of health insurance outside these attachments, however, remains uncertain.

Recent reports have begun emphasizing the potential consequences of the ACA's partial or full repeal (Blumberg, Buettgens, and Holahan 2016; Obama 2016), but no research has yet focused on the institutional structuring of the health insurance system to highlight who might be most vulnerable without the law. In light of the deteriorating conditions of and the increasingly tenuous attachments to labor market, marriage, and family institutions in both the U.S. and other high-income countries (Shanahan 2000; Mayer 2004; Arnet et al. 2011), the framing and results of this study have significant implications for our future understanding of health insurance provision on a global scale. Understanding how the ACA reaches institutionally unattached adults is therefore important and informative for our future creation of social policies in countries within and outside of the United States.

Due to the unequal risks associated with being unemployed, unmarried, and childless, such changes in the patterns of adults with coverage led to significant reductions in the health insurance inequalities between many sociodemographic groups. For example, those between gender, race-ethnic, and education groups all declined. Adults who experienced the greatest benefits from the ACA included men, Blacks and Latinos, and those with lower levels of education (i.e., groups with less than high school and high school levels of education). Though disparities in coverage between sociodemographic groups still exist, there are important theoretical reasons to expect that these findings have significant implications for our future understanding of overall health inequalities.

Scholars across disciplines have long puzzled over whether improvements in health insurance among underserved groups could reduce health disparities in the population (e.g., Card, Dobkin, and Maestas 2004; Currie and Gruber 1996; Hadley 2003; Finkelstein 2007; House 2015). Some argue that such improvements will have little impact on health inequalities, because expanding the supply of health insurance neglects to change the unequal distribution of its demand, which is shaped by other social, economic, and environmental determinants (e.g., House 2015). Our existing understanding of health inequalities, however, has been developed in a fundamentally different historical context. Under the previous structuring of the U.S. healthcare system, health insurance was largely concentrated among adults selected into labor market, marriage, and family institutions, who gained coverage through their institutional attachments. An individual's health insurance status was therefore "almost always determined by at least some of the same factors that determine health status" (Levy and Meltzer 2008:401).

This study makes an important contribution to sociological research on health that commonly points to proximate, horizontal mechanisms to explain how different groups experience varying levels of illness and disease by drawing attention to the ways that these social determinants of health are shaped by more distal, organizational properties of society. By shifting the object of inquiry from the socioeconomic positions and material conditions of individuals and groups to the institutional processes of society, this work has the capacity to improve the translation of research into policy actions, especially

considering the lack of government policymaking in response to the wealth of studies on the social determinants of health (Raphael 2006).

This is not to say, however, that having health insurance guarantees better health. The health benefits associated with health insurance are mediated by increased use of higher-quality medical services (Hadley 2003; Freeman et al. 2008; Levy and Meltzer 2008; McWilliams 2009), but improved access to health care is not guaranteed by health insurance. Individuals may still encounter significant barriers to accessing health care left unresolved by health insurance coverage, including: lack of a nearby provider, limited hours of medical clinics, difficulty finding available physicians, inability to get a referral for a provider, and lack of translation services (Betancourt, Green, and Carrillo 2002; Bierman et al. 2002; Starfield and Shi 2004; Cooper and Powe 2004). Even if patients gain health insurance, their ability to pay for treatments and services may still not improve (DeVoe et al. 2007).

Nevertheless, having health insurance is considered a key determinant for access to and use of recommended and needed medical care (Institute of Medicine 2002; Hadley 2003; Freeman et al. 2008; Levy and Meltzer 2008; McWilliams 2009). By separating access to health insurance from institutional attachment, the ACA provides a new source of coverage exogenous to the typical underlying determinants of health. This new provision of health insurance extends coverage to certain adults characterized by poor health, including men, people of color, and groups with less education (Wachino et al. 2014). Given the ways the distribution of coverage under the ACA aligns with the

concentration of poor health among adults, researchers should expect to eventually observe significant improvements in health inequalities.

The results from this study therefore suggest that government interventions can reshape the inequality landscape by reducing disparities along institutional attachment lines, which map well on to standard stratification lines, such as gender, race and ethnicity, and education. Reducing inequalities therefore requires redistribution of the benefits derived from institutional attachment to include unattached individuals, such as those who are unemployed, unmarried, and childless. Interventions that fail to deliver resources to individuals through pathways unrelated to their preexisting institutional positions may otherwise generate unintended consequences.

Table 2.1: The Sociodemographic Distribution of Health Insurance Coverage and the Corresponding Sources through which the insured population received coverage in 2009. Adults aged 18-64, CPS 2010.

	Share of the Total	Share of the Insured Population[a]			
	Insured	Employer	Spousal	Medicaid	Other
Total	78.1	47.5	28.3	15.6	8.7
Gender					
Female	80.3	39.1	34.9	17.4	8.5
Male	75.9	56.7	20.8	13.4	9.0
Race/Ethnicity					
White	84.1	48.6	30.1	11.7	9.6
Black	73.1	47.2	19.3	28.3	5.2
Latino	57.2	43.9	23.8	26.2	6.1
Education					
Less than HS	58.2	23.2	24.9	45.9	6.0
HS	72.4	45.7	26.1	20.7	7.5
Some college	80.6	45.8	32.4	13.0	8.9
College +	90.3	57.5	27.0	5.0	10.4

[a] These values represent the share of insured adults across observed sources of health insurance. Estimated values sum to 100 percent per sociodemographic group.

Table 2.2: Descriptive Statistics of Control Variables in the Pre- and Post-ACA Study Periods. Adults aged 18-64, NSDUH 2009-2012 and 2014-2016.

Concept	Variable	Description	Coding scheme	Pre-ACA %	Post-ACA %	
Gender	Female	Is the respondent female?	0 = no	50.8	50.9	
			1 = yes (Ref)			
Race/Ethnicity	White	Is the respondent non-Hispanic White?	0 = no			
			1 = yes (Ref)	69.9	67.4	***
	Black	Is the respondent non-Hispanic Black?	0 = no			
			1 = yes	13.1	13.6	
	Latino	Is the respondent of Hispanic/Latin origin?	0 = no			
			1 = yes	17.0	19.0	***
Age	18 to 25	Is the respondent 18-25 years old?	0 = no			
			1 = yes	17.8	17.6	
	26 to 34	Is the respondent 26-34 years old?	0 = no			
			1 = yes	18.9	19.3	
	35 to 49	Is the respondent 35-49 years old?	0 = no			
			1 = yes	32.4	30.7	***
	50 to 64	Is the respondent 50-64 years old?	0 = no			
			1 = yes (Ref)	30.9	32.4	**
Education	Less than HS	Is the respondent's highest level of education less than high school?	0 = no			
			1 = yes	13.8	12.9	**
	HS	Is the respondent's highest level of education high school or GED equivalent?	0 = no			
			1 = yes	30.3	26.7	***
	Some college	Is the respondent's highest level of education some college?	0 = no			
			1 = yes	27.3	31.3	***
	College +	Is the respondent's highest level of education college or more?	0 = no			
			1 = yes (Ref)	28.5	29.1	
Income	< 100% FPL	Is the respondent's household income below the Federal Poverty Line (FPL)?	0 = no			
			1 = yes	14.9	16.5	***
	100 - 199% FPL	Is the respondent's household income greater than 100% of the FPL and less than 199% of the FPL?	0 = no			
			1 = yes	19.7	19.3	
	< 200% FPL	Is the respondent's household income greater than or equal to 200% of the FPL?	0 = no			
			1 = yes	65.4	64.2	*
	Welfare	Did the respondent participate in any of the following programs in the past year: welfare or Temporary Assistance for Needy Families (TANF), Supplemental Security Income (SSI), or Supplemental Nutrition Assistance Program (SNAP) (food stamps)?	0 = no			
			1 = yes (Ref)	19.4	21.4	***
Health status	SRH	Did the respondent report their general health status as fair or poor, rather than as excellent, very good, or good?	0 = no			
			1 = yes (Ref)	11.5	12.3	**
	Chronic illness	Did the respondent report having any of the following health conditions in their lifetime: asthma, chronic bronchitis, cirrhosis of the liver, diabetes, heart disease, hepatitis, hypertension, or HIV?	0 = no			
			1 = yes (Ref)	31.4	31.6	

Two-tailed adjusted t-test (Probability > t): $^{*}p<.05$, $^{**}p<.01$, $^{***}p<.001$

Note : the numbers and percentages reported are based on sample weights.

Table 2.3: Percent Uninsured in the Pre- and Post-ACA Study Periods for the Total Population and across Groups with and without Institutional Attachments. Adults aged 18-64, NSDUH 2009-2012 and 2014-2016.

	% Uninsured		% Uninsured Pre vs. Post	
	Pre	Post	%-pt. Δ	% Δ
Total	19.7	13.6 ***	-6.1	-31.0
Institutional Attachment				
Overall				
Attached	17.1	12.1 ***	-5.0	-29.2
Unattached	37.8	22.3 ***	-15.5	-41.0
Labor Market				
Attached	15.5	11.1 ***	-4.4	-28.4
Unattached	27.7	18.1	-9.6	-34.7
Marriage				
Attached	13.3	9.3 ***	-4.0	-30.1
Unattached	26.7	17.9 ***	-8.8	-33.0
Family				
Attached	18.1	13.3 ***	-4.8	-26.5
Unattached	20.6	13.7 ***	-6.9	-33.5

Two-tailed adjusted t-test (Probability > t): *p<.05, **p<.01, ***p<.001

Note: the numbers and percentages reported are based on sample weights.

Table 2.4: Regression Coefficients for Models Predicting the Log Odds of Being Uninsured. Adults aged 18-64, NSDUH 2009-2012 and 2014-2016.

	Pre-ACA Difference[a]	Post-ACA Difference[a]	Pre- vs. Post-ACA Differences[b]
Institutional Attachment			
Model 1			
Overall	.888 ***	.462 ***	-.425 ***
	(.018)	(.050)	(.032)
Model 2			
Labor Market	.643 ***	.382 ***	-.261 ***
	(.015)	(.042)	(.027)
Model 3			
Marriage	.367 ***	.262 ***	-.106 ***
	(.019)	(.049)	(.030)
Model 4			
Family	.382 ***	.224 ***	-.158 ***
	(.018)	(.046)	(.028)

*p<.05, **p<.01, ***p<.001 (two-tailed tests)

[a] Comparing differences in the log odds of being uninsured between adults with (control group) and without (treatment group) institutional attachments for the pre- and post-ACA study periods.

[b] Difference-in-differences: comparing differences in outcomes for the pre- and post-ACA study periods among adults with and without institutional attachments.

Table 2.5: Percent Uninsured in the Pre- and Post-ACA Study Periods across Sociodemographic Groups. Adults aged 18-64, NSDUH 2009-2012 and 2014-2016.

Panel A. *within-group differences*

	% Uninsured		% Uninsured (Pre vs. Post)	
	Pre	Post	%-pt. Δ	% Δ
Gender				
Female	17.6	11.6 ***	-6.0	-34.1
Male	21.9	15.7 ***	-6.2	-28.3
Race/Ethnicity				
White	14.7	9.8 ***	-4.9	-33.3
Black	22.9	15.2 ***	-7.7	-33.6
Latino	37.9	25.9 ***	-12.0	-31.7
Education				
Less than HS	41.6	29.9 ***	-11.7	-28.1
HS	23.6	18.1 ***	-5.5	-23.3
Some college	16.9	11.2 ***	-5.7	-33.7
College +	7.6	4.7 ***	-2.9	-38.2

Panel B. *between-group differences*

	% Uninsured		% Uninsured (Pre vs. Post)	
	Pre	Post	%-pt. Δ	% Δ
Gender				
Male - Female	4.3	4.1 *	-0.2	-4.7
Race/Ethnicity				
Black - White	8.2	5.4 ***	-2.8	-34.1
Latino - White	23.2	16.1 ***	-7.1	-30.6
Education				
Less than HS - College +	34.0	25.2 ***	-8.8	-25.9
HS - College +	16.0	13.4 ***	-2.6	-16.3
Some college - College +	9.3	6.5 ***	-2.8	-30.1

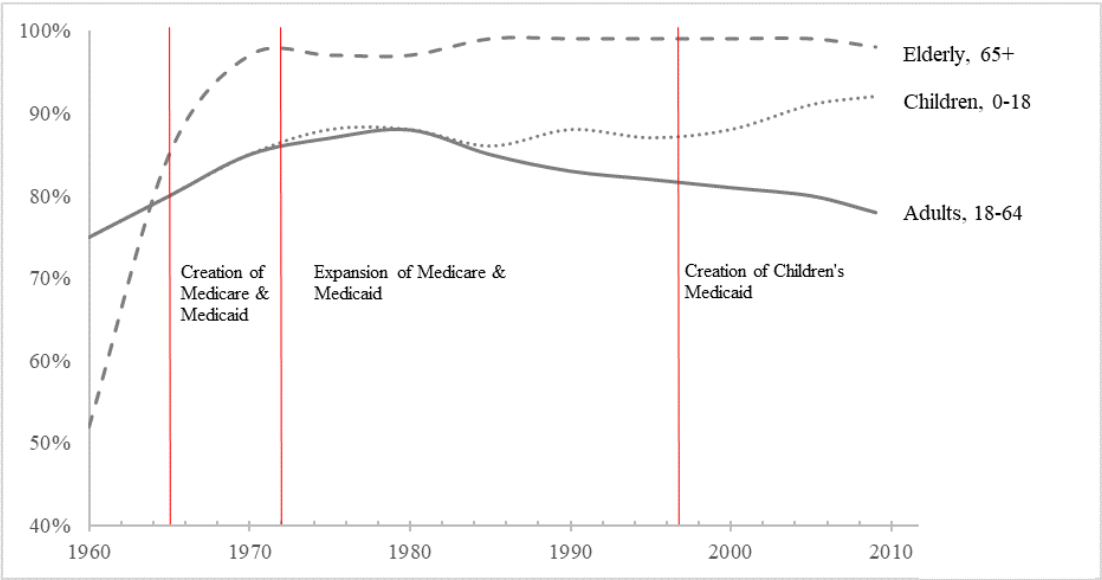
Two-tailed adjusted t-test (Probability > t): *p<.05, **p<.01, ***p<.001

Note: the numbers and percentages reported are based on sample weights.

Table 2.6: Regression-Adjusted Difference in the Estimated Risk of Being Uninsured by Institutional Attachment. Adults aged 18-64, NSDUH 2009-2012 and 2014-2016.

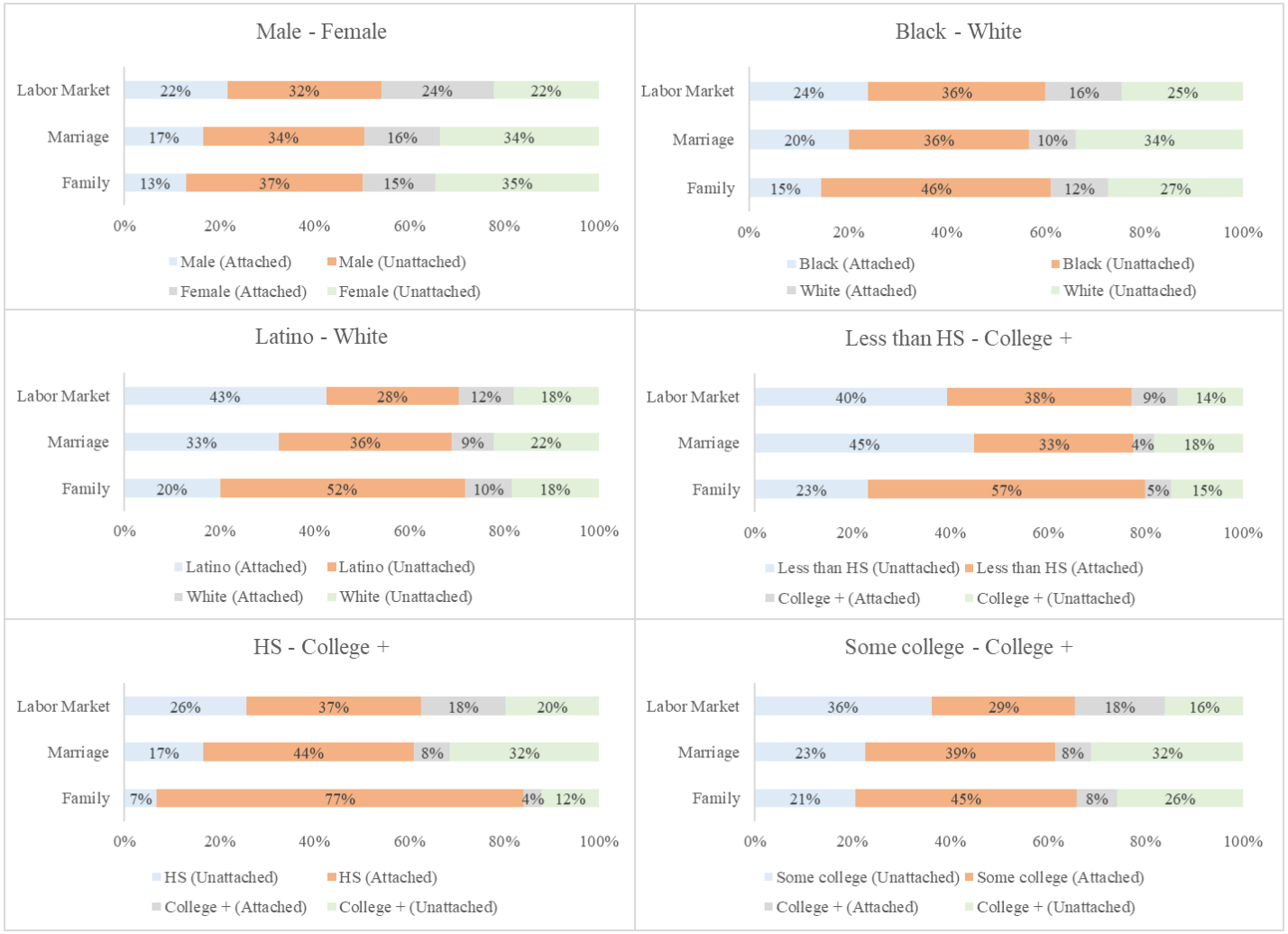
	Labor Market				Marriage				Family			
	Attached vs. Unattached		Pre vs. Post Δ		Attached vs. Unattached		Pre vs. Post Δ		Attached vs. Unattached		Pre vs. Post Δ	
	Pre	Post	%-pt.	%	Pre	Post	%-pt.	%	Pre	Post	%-pt.	%
Gender												
Men - Women	2.6 ***	2.1 ***	-0.5	-19.2	12.6 ***	8.0 ***	-4.6	-36.5	12.6 ***	7.8 ***	-4.8	-38.1
Race/Ethnicity												
Black - White	0.7 ***	0.5 ***	-0.2	-28.6	0.4 ***	0.2 ***	-0.2	-50.0	0.4 ***	0.3 ***	-0.1	-25.0
Latino - White	4.7 ***	4.4 ***	-0.3	-6.4	2.8 ***	2.4 ***	-0.4	-14.3	3.0 ***	2.6 ***	-0.4	-13.3
Education												
Less than HS - College +	7.0 ***	5.8 ***	-1.2	-17.1	3.9 ***	3.1 ***	-0.8	-20.5	4.2 ***	3.3 ***	-0.9	-21.4
HS - College +	5.3 ***	3.9 ***	-1.4	-26.4	2.9 ***	2.1 ***	-0.8	-27.6	2.8 ***	2.2 ***	-0.6	-21.4
Some college - College +	3.0 ***	2.1 ***	-0.9	-30.0	1.6 ***	1.2 ***	-0.4	-25.0	1.7 ***	1.2 ***	-0.5	-29.4

Figure 2.1. Rates of Health Insurance Coverage in the U.S. Population by Age Groups, 1960-2009.



Source: National Center for Health Statistics (NCHS), National Health Interview Survey (NHIS).
Note: The 1960-1974 estimates are derived from a NCHS report, "Health Insurance Coverage Trends, 1959-2007: Estimates from the National Health Interview Survey" (Cohen et al. 2009). The NHIS estimates observed thereafter are based on the author's calculations.

Figure 2.2. Decomposition of the Changes in Health Insurance Disparities between Sociodemographic Groups.



Chapter 3:

The Institutional Determinants of Health: An Update to our Understanding of Social Inequalities in Health in the United States

Introduction

In the United States: men, people of color, and individuals with lower levels of formal schooling experience worse health outcomes and expect shorter lives than other adults (Williams and Sternthal 2010; Olshansky et al. 2012; Sasson 2016). The processes through which disparities in health across gender, race and ethnicity, and education arise are multifaceted. In general, researchers account for a combination of material, psychosocial, behavioral, and biological factors to explain why health varies across social groups. Although many institutional mechanisms leave people differentially exposed to such factors, less attention has been given to understanding the extent to which inequalities in health are shaped by more distal, organizational properties of society. Recent passage of the Patient Protection and Affordable Care Act (hereafter, "ACA"), however, provides a new and unique opportunity to broaden our conceptualizations of the determinants associated with health to include institutional processes.

Prior to the ACA, U.S. healthcare policies required working-age (18-64) adults (hereafter, "adults") to access health insurance through labor market, marriage, and family institutions (Seccombe 1993; Meyer and Pavalko 1996; Currie and Madrian 1999). Because the pathways expected to provide adults with access to health insurance are themselves highly stratified, coverage was lower for men, people of color, and adults

with lower levels of formal schooling than it was for women, Whites, and those with higher levels of schooling. By providing adults with a new pathway for obtaining health insurance *decoupled from* their labor market, marriage, and family attachments, however, the ACA has dramatically increased coverage among those traditionally uninsured (see Chapter 2). Thus, the passage of the ACA provides an opportunity to carefully consider the institutional determinants of health and raises important questions about the centrality of institutions for our knowledge of health inequalities.

In this study, I leverage the timing of the ACA's implementation as a "natural experiment" to examine how institutions affect health. In doing so, I aim to expand our understanding of the ways that social inequalities in health are institutionally determined. With data from the National Survey on Drug Use and Health (NSDUH), I use a difference-in-differences approach to compare measures of health care and health status among adults from before and after the ACA became active in 2014. This technique meets stringent criteria for causal inference (Donald and Lang 2007; Lechner 2011), allowing me to identify changes in health care and health status that are attributable to the passage of the ACA. The results from this study therefore provide robust empirical evidence on how the provision of health insurance impacts outcomes related to health care and health that is otherwise complicated by the fact that health insurance is not typically assigned randomly to individuals (Levy and Meltzer 2008).

In the context of the ACA's transformation of the U.S. healthcare system, the results of this study have significant theoretical and policy relevance. Since the mid-20th century in the United States, an individual's health insurance status was "almost always

determined by at least some of the factors that determine health status" (Levy and Meltzer 2008: 401). By separating access to health insurance from the effects of being employed, married, and parenting, the ACA provides a new source of coverage *exogenous* to the typical underlying determinants of health. This new provision of health insurance extends coverage to adults historically characterized by poor health in the U.S., including men (Read and Gorman 2010), people of color (Williams 2012), and groups with lower levels of formal schooling (Olshansky et al. 2012). Given how health insurance enables access to more and higher-quality medical services (Hadley 2003; Freeman et al. 2008; McWilliams 2009), previously observed inequalities in health care and health outcomes may drastically change.

Social Inequalities in Health

Group differences in health across gender, race and ethnicity, and education are well established. In terms of gender differences, men experience higher mortality rates for 12 of the 15 leading causes of death (Xu et al. 2016). They die more than five years earlier and suffer more severe chronic medical conditions than women (Case and Paxson 2005). Compared to non-Hispanic Whites (hereafter, "Whites"), non-Hispanic Blacks (hereafter, "Blacks") exhibit higher levels of several chronic diseases, functional impairment, and disability (Blackwell, Collins, and Coles 2002; Kelley-Moore and Ferraro 2004, 2005; Fuller-Thomson et al. 2009). Blacks have higher death rates for 10 of the 15 leading causes of death and they die approximately four years earlier than Whites (Williams 2012; Kochanek, Arias, and Anderson 2013).

The health profile of Latinos is more complex due to a high proportion of immigrants within this population (Hummer et al. 1999; Markides and Eschbach 2005). Like immigrants of all racial and ethnic groups, foreign-born Latinos tend to have better health than their native-born peers, but these health advantages generally decline with increasing length of stay and generational status (Singh and Miller 2004). On average, Latinos exhibit a higher prevalence of several chronic diseases (Markides, Coreil, and Rogers 1989) and have worse functional health than Whites (Rogers, Hummer, and Nam 1999). They have higher rates of mortality for four of the 15 leading causes of death but expect to live almost three years longer than Whites (Williams 2012; Kochanek et al. 2013). Because of their higher morbidity and lower mortality, Latinos—especially Mexican Americans—expect to live a greater number of years with physical limitations and disabilities than Whites or Blacks (Hayward, Warner, and Crimmins 2007).

Educational attainment is a particularly important axis of health stratification that has recently surpassed both race and gender in its importance as a predictor of life expectancy in the United States (Arias 2007; Harper et al. 2007; Rogers et al. 2010; Kochanek et al. 2013). For both sexes and across racial and ethnic groups, individuals without a certificate of high school completion have the shortest life expectancy (Montez et al. 2011, 2012). People with fewer years of formal schooling also experience greater levels of morbidity and higher rates of disability in comparison to those with more years of formal education (Zajacova et al. 2012).

Consistent with health differences observed across gender, race and ethnicity, and education, those who expect the shortest lives are Black men with fewer than 12 years of

schooling (Olshanksy et al. 2012; Sasson 2016). The life expectancy of these men is nearly 14 years lower than that of White men who completed at least 16 years of formal schooling (Olshansky et al. 2012). Health disadvantages associated with lower levels of education are pervasive among Blacks, given the unequal distribution of education across race and ethnicity (Kao and Thompson 2003). As a result, Black men across all levels of education are more generally considered "the most vulnerable U.S. racial-gender group for almost every condition that medical researchers monitor" (Smith, Hung, and Franklin 2011, p. 63).

Theoretical Explanations of Social Inequalities in Health

Contemporary research in medicine, public health, and the social sciences tests several broad categories of explanations to advance our understanding of health disparities across social groups. One class of explanation focuses on material factors in the creation of health disparities (Kawachi, Subramanian, and Almeida-Filho 2002). Material factors include food, shelter, pollution, and other living conditions and resources that people may use to avoid health risks or to minimize the consequences of poor health (Lynch et al. 2000). Measures of physical resources and conditions, such as income or air quality, are often used to test the role of material variation in creating health differences. Researchers also commonly measure income and all accumulated material resources to account for wealth and social position. The unequal distribution of objective resources and physical living conditions across social groups therefore contributes to inequalities in health via material pathways.

A second type of explanation points to psychosocial factors as generators of health inequalities across social groups. Psychosocial factors impact health through physical and psychological responses to feelings, perceptions, and experiences of social exclusion, discrimination, inadequate social support, adversity, trauma, and other life circumstances linked to social position that affect states of mind (Schnittker and McLeod 2005). Negative psychosocial states impact physical health outcomes by triggering acute and chronic experiences of stress, which can lead to elevated blood pressure, the development of diabetes, and an increased risk of ischemic heart disease, among other poor health outcomes (McEwen 1998; Macleod and Smith 2003; Everson-Rose and Lewis 2005). Psychosocial factors therefore contribute to our understanding of social inequalities in health to the extent that different groups are systematically more or less likely to experience stress, demoralization, and otherwise adverse emotional events in their daily lives (Matthews, Gallo, and Taylor 2010).

Another common explanation of social inequalities in health is behavioral differences. Behaviors related to eating, drug and alcohol use, and physical exercise may influence physical health by putting people at greater or lower risk for health outcomes such as obesity (Flegal et al. 2005) or cancer (Cutler et al. 2011). Although health behaviors typically do vary across groups (Rose and Marmot 1981; Marmot, Shipley, and Rose 1984), a major concern with this theoretical explanation of health inequalities is that observed variations in behaviors may often be explained by other factors *also* associated with health outcomes. Differences in smoking patterns across education, for example, may be caused by the unequal distribution of stress and other psychosocial factors

(Marmot 2006; Cutler, Lleras-Muney, and Vogl 2008). The usefulness of attributing social inequalities in health to behaviors therefore has obvious limitations.

A fourth type of explanation underscores the role of biological factors. This perspective suggests that social inequalities in health reflect differences in human genomics and gene-by-environment interactions that vary accordingly (Koster et al. 2005; Skalická et al. 2009; Goosby, Cheadle, and Mitchell 2018). Like behavioral explanations, other upstream factors may be responsible for variations in biological factors observed across social groups (Koster et al. 2005). Biological factors are therefore limited in their power to explain social inequalities in health when they fail to acknowledge why they vary across groups in the first place. Nevertheless, this type of explanation is likely more useful for "understanding variations in health observed across individuals in a population where social group differences are not the focus" (Arcaya, Arcaya, and Subramanian 2015: 9).

Health Care

Often accounted for within and across material, psychosocial, and behavioral explanations, health care is an important resource linked to social inequalities in health (Mackenbach 1996; Mackino, Starfield, and Shi 2003). In all advanced, industrialized countries, health care is a key and central feature of the welfare state. The distributional properties associated with access to health care, however, vary from country to country (Korpi and Palme 1998). In most high-income countries, access to health care is equally distributed as a social right of citizenship through universal health insurance programs (Esping-Andersen 1990; Bambra 2005). Healthcare access in the U.S., by contrast, is

distinctively unequal because health insurance is not universal (Quadagno 2005). Without a universal health insurance program, U.S. citizens do not share an entitlement to healthcare coverage or a requirement to be covered (Hacker 2004). In 2009, more than one in five adults (21.9%) were uninsured, and the lack of coverage was concentrated among certain subgroups in the population, including men, people of color, and individuals with lower levels of formal schooling (see Chapter 2). Healthcare outcomes among adults in the United States are therefore substantially different from those of adults in other high-income countries.

Compared to their peers in other high-income countries, adults in the U.S. have worse access to health care, make less use of care, and experience worse health outcomes (e.g., Navarro and Shi 2001; Coburn 2004; Banks et al. 2006; Navarro et al. 2006; Avendano and Kawachi 2014). Table 3.1 displays a broad range of health care and health status outcomes among adults in high-income countries, and shows that the U.S. ranks at or near the bottom for nearly every measure. In terms of health care access and use of care, Table 3.1 shows that adults in the U.S. are more likely to delay recommended care, to forego needed care because of cost, and to experience serious problems paying medical bills (see Panels A and B). They also make fewer trips to primary care providers, have fewer and shorter hospital stays, and experience worse quality and continuity of care (see also Schoen et al. 2006, 2010).

The distinct nature of the U.S. healthcare system is likely an important driver of the comparatively poor health outcomes observed among U.S. adults. According to Table 3.1 (Panel C), adults in the U.S. experience worse health than their peers living in

countries with universal health care. They exhibit greater levels of morbidity, higher rates of mortality, and fewer years of life expectancy. The gap in adult health between the U.S. and other countries is especially pronounced when comparing amenable mortality (that is, deaths that are potentially preventable given effective and timely health care) (Nolte and McKee 2004). Differences in the availability of health care may therefore explain at least part of the health disadvantages among U.S. adults.

Despite significant evidence supporting the health advantages of universal health care (Bambra 2005; Beckfield and Krieger 2009), the effects of health care on health are widely debated. Some researchers suggest that health care contributes little to population health (McKeown 1979; Colgrove 2002), while others argue that health care makes an increasingly important impact on overall levels of health given ongoing improvements in medical interventions (Mackenbach et al. 1988; Macinko et al. 2003; Nolte and McKee 2004). From a cross-national comparative perspective, understanding the extent to which differences in health care contribute to the health disadvantages of adults in the U.S. is complicated by the greater generosity of welfare states in other high-income countries (Olafstdottir 2007). Indeed, the universal provision of health insurance in other high-income countries is coupled with the delivery of many other welfare services, including highly subsidized benefits for education, housing, and income. Because these aspects of social life are also related to health, the unique benefits of universal health care are difficult to disentangle.

Health Insurance

Health insurance is a fundamental aspect of accessing health care, and a significant body of research demonstrates the important role of health insurance in triggering a cascade of benefits that ultimately lead to improved health (Finkelstein 2007; Freeman et al. 2008; McWilliams 2009). For example, insurance status is linked to having a usual source of care, or a place to go when sick or need advice about their health. Less than half the population of uninsured adults (44%) report having a usual source of care, and only 33% have a regular doctor (Garfield, Licata, and Young 2014). In comparison, the share of insured adults with a usual source of care or with a regular provider is over twice as high[1]. Having a usual source of care and a regular health care provider is an indicator of being able to receive timely and adequate medical services, including recommended screening and preventive services as well as ongoing care to manage chronic health problems (Collins, Tenney, and Hughes 2002).

Given their lack of connection to the healthcare system, many uninsured adults go without care. In 2013, approximately 41% of uninsured adults reported that they went without any health care visit in the previous year, compared to 10% of Medicaid beneficiaries and 13% of adults with employer coverage (Garfield et al. 2014). With less attention given to their health, uninsured adults are more likely than the insured to suffer from an undiagnosed illness, including chronic health conditions that can be controlled with appropriate management (Ayanian et al. 2003; McWilliams 2009). In several specific conditions, the uninsured have worse survival, and their risk of death is 25%

higher for all-cause mortality (IOM 2002; Hadley 2003). The lack of health insurance can therefore be deadly (Dickman, Himmelstein, and Woolhandler 2017).

Decades of research documenting the consequences of living without health insurance consistently suggests that expanding coverage in the United States would likely improve the health of uninsured adults and, thereby, reduce social inequalities in health (Aday and Andersen 1974; Levy and Meltzer 2008; Finkelstein et al. 2012). According to health economics and public health literatures, health insurance improves health by enabling access to more and higher-quality health services that ultimately reduce the burden of illness and disease (Hadley 2003; Freeman et al. 2008; McWilliams 2009). Previous research linking health insurance to health outcomes, however, has suffered weaknesses related to selection bias and endogeneity.

Since the mid-20th century, U.S. healthcare policies have required working-age adults to access health insurance through labor market, marriage, and family institutions (Seccombe 1993; Meyer and Pavalko 1996; Currie and Madrian 1999). These policy arrangements helped employed, married, and parenting adults gain coverage through the benefits derived from their institutional attachments, but offered unemployed, unmarried, and childless adults little protection against the risk of being uninsured. Because the pathways expected to provide adults with access to health insurance are themselves highly stratified, an individual's health insurance status was endogenous to their health status (Levy and Meltzer 2008). The unequal distribution of health insurance access resulted in systematically lower levels of coverage for men, people of color, and individuals with fewer years of formal schooling (see Chapter 2).

The Affordable Care Act: An Informative Case Study

The recent passage of the ACA provides a comparatively unique and historically new opportunity to broaden our conceptualizations of the determinants associated with health. Prior to the ACA, health insurance was largely concentrated among adults selected into labor market, marriage, and family institutions, who gained coverage through their institutional attachments. Upon its implementation in 2014, the ACA fundamentally restructured the availability of health insurance by providing adults with a new pathway for obtaining coverage *decoupled from* labor market, marriage, and family institutions. This significant change in healthcare policy dramatically increased coverage among traditionally underinsured groups, including men, people of color, and individuals with fewer years of formal schooling (see Chapter 2).

Existing theory and empirical research generates a number of important hypotheses about whether and how the adoption of the ACA may affect health care use and outcomes and, ultimately, sociodemographic inequalities in health. Thus, the aim of this study is to explore the effects of the ACA on outcomes related to health care and health status, with the purpose of identifying changes to enduring social inequalities in health across gender, race and ethnicity, and education. Results from this study contribute to our current understanding of social inequalities in health by adding to our knowledge on the interrelationship between health insurance, health care, and health status, as well as by expanding our conceptualizations of the determinants associated with health to include institutional processes.

Data

To explore the effects of the ACA on outcomes related to health care and health status, I use data from the National Survey on Drug Use and Health (NSDUH). The NSDUH is a nationally representative, cross-sectional survey of the non-institutionalized population in the U.S., conducted annually by the Substance Abuse and Mental Health Services Administration (SAMHSA). Data from the NSDUH are particularly useful for investigating health in the context of the ACA because the survey identifies and oversamples populations who exhibit traits that have traditionally predicted lower use of health care and poor health outcomes.

For example, through its use of an independent, multistage area probability sample of all states and the District of Columbia, the NSDUH was designed to oversample young adults ages 18 to 25, Blacks, Latinos, and residents of rural areas (Gfoerer, Larson, and Colliver 2007). To promote their inclusion in the survey and to accommodate the cultural and linguistic needs of the Latino population, interviews are available in both English and Spanish (Kennet and Gfoerer 2005). The NSDUH also prioritizes the inclusion of harder-to-reach populations by surveying individuals living in non-institutionalized group quarters and temporary housing, including shelters, college dormitories, migratory worker camps, and halfway houses (SAMHSA 2017).

Sample

This study relies on samples of the adult population drawn from before and after access to health insurance was transformed by the ACA. The ACA mandated several major changes to the U.S. healthcare system, but the reforms related to this research

include only the creation of the Health Insurance Marketplace and the Medicaid expansion. These policy changes are considered the most comprehensive reforms of the ACA and were intended to make health insurance accessible for all U.S. citizen adults (Garfield et al. 2014).

The ACA was enacted in 2010 and was designed to roll out its reforms on the U.S. healthcare system over four years and beyond. The enrollment period for new insurance plans through the Marketplace began in 2013, but the benefits of this coverage did not become active until January 1, 2014. Likewise, individuals newly eligible for Medicaid could begin their enrollment in 2013, but could not access their benefits until January 1, 2014 (Wachino et al. 2014). In view of this timing, I treat 2013 as a washout period that was excluded from analyses and defined the period *after* adults' access to health insurance was transformed by the ACA as January 2014 through December 2016 (*post-ACA* study period). To include the period before the ACA was signed into law in 2010, and to appropriately compare years close together in time, I defined the period *before* access to health insurance among adults was transformed by the ACA as January 2009 through December 2012 (*pre-ACA* study period).

The analytic sample consists of adults between 18 and 64 years of age who reported their race and ethnicity as non-Hispanic White ("White"), non-Hispanic Black ("Black"), or Hispanic or Latin origin of any race ("Latino"). In order to account for only those whose access to health insurance was transformed by the ACA, the sample excludes adults who reported they were currently disabled or pregnant. Respondents from the cross-sectional waves of the 2009-2012 NSDUH data make up the sample in the pre-

ACA period, (n = 130,989) while those from the 2014-2016 waves comprise the sample in the post-ACA period (n = 104,837). Excluding adults classified as disabled or pregnant, as well as those whose racial and ethnic identity was outside of White, Black, and Latino categories, left out 9% (n = 21,084) of the total sample of adults between the ages of 18 and 64 (n = 235,826). Results including all respondents are substantively identical to those presented here and are available upon request.

Measures

This study focuses on outcomes related to health care use and health status. I therefore use two distinct sets of dependent variables in my analyses. All outcomes used in the analysis are based on self-reported information in the NSDUH.

The first set of outcomes are related to the use of health care. Three binary variables indicated whether (1) or not (0) respondents reported that they: were treated in an emergency room, stayed overnight or longer as an inpatient in a hospital, or visited a medical provider (including a doctor, nurse, physician assistant, or nurse practitioner) in a health setting (including a doctor's office, a clinic, or some other place) during the past 12 months.

The second set of outcomes focus on self-reported health and diagnoses of chronic medical conditions to measure health status. Although subjective, self-rated health is repeatedly found to be correlated with objective measures of health, including mortality (e.g., Idler and Benyamini 1997; DeSalvo et al. 2006; Phillips et al. 2010). Self-rated health is also considered a global measure of health that captures the full range of possible diseases and limitations (Idler and Benyamini 1997). Consistent with existing

work, I measure self-rated health using a single binary variable to indicate whether (1) or not (0) respondents reported their overall health as excellent or very good. Chronic health conditions are also important to investigate because individuals with these medical issues likely have the most to gain from coverage expansion (McWilliams 2009). Following prior work (Baicker et al. 2013), I measure diagnoses of chronic health conditions using three binary variables that indicated whether (1) or not (0) respondents reported ever having been diagnosed with asthma, cardiovascular disease, depression, diabetes, or hypertension.

To estimate the effects of the ACA on social inequalities in health, I created a set of dummy variables measuring differences across gender, race and ethnicity, and education. In addition to these independent variables, I account for a battery of other sociodemographic and health status measures in my analyses to control for the confounding effects of factors related to the outcomes of interest. These covariates include individual measures of age, employment, marital status, parenting status, household income, receipt of government assistance, and the incidence of certain illnesses, including chronic bronchitis, cirrhosis of the liver, hepatitis, and HIV/AIDS. The qualitative descriptions and coding schemes for the sociodemographic traits and health status measures mentioned here, as well as the weighted means of these variables in the pre- and post-ACA study periods are shown in Table 3.2.

Methods

The aim of this investigation is two-fold: to explore the effects of the ACA on outcomes related to (1) health care and (2) health status. To begin the investigation, I first

summarize the trends of health care use and health status among adults from the pre-ACA period to the post-ACA period. Using survey weights to adjust sample characteristics to be nationally representative, I present these trends by gender, race and ethnicity, and education in Table 3.4. Next, I leverage the timing of the ACA as a "natural experiment" to estimate the trends of health care and health status using a "differences-in-difference" framework.

The basic approach in a DID analysis is to compare the difference in outcomes between a treatment group and a control group a time points before (difference 1) and after (difference 2) a policy intervention. Average changes over time in the outcomes of the control group are then subtracted from average changes over time in the treatment group (difference 2 – difference 1). This double differencing procedure removes both the effect that could result from permanent differences between the two groups as well as the effect of changes over time in the treatment group that could arise from causes unrelated to the intervention. Regression models for the DID analyses are specified as follows:

$$logit(p_i) = \beta_0 + \beta_1 I_{Male_i} + \gamma_0 T_i + \gamma_1 T_i \times I_{Male_i} + \beta_2 X_{it} \quad (1)$$

$$logit(p_i) = \beta_0 + \beta_1 I_{Black_i} + \gamma_0 T_i + \gamma_1 T_i \times I_{Black_i} + \beta_2 X_{it} \quad (2)$$

$$logit(p_i) = \beta_0 + \beta_1 I_{Latino_i} + \gamma_0 T_i + \gamma_1 T_i \times I_{Latino_i} + \beta_2 X_{it} \quad (3)$$

$$logit(p_i) = \beta_0 + \beta_1 I_{LessHS_i} + \gamma_0 T_i + \gamma_1 T_i \times I_{LessHS_i} + \beta_2 X_{it} \quad (4)$$

$$logit(p_i) = \beta_0 + \beta_1 I_{HS_i} + \gamma_0 T_i + \gamma_1 T_i \times I_{HS_i} + \beta_2 X_{it} \quad (5)$$

$$logit(p_i) = \beta_0 + \beta_1 I_{SomeColl_i} + \gamma_0 T_i + \gamma_1 T_i \times I_{SomeColl_i} + \beta_2 X_{it} \quad (6)$$

where p_i represents the dichotomous outcome variables of interest for individual i at time T (T = 1 for the post-ACA study period, T = 0 for the pre-ACA study period). γ_1 is the treatment effect, reflecting the average changes over the study period in the treatment group's likelihood of being uninsured, subtracted by these changes in the control group. X is a vector of the control variables.

As indicated by their unique specifications, the models differ by their sorting of the treatment and control groups. In Models 1-3, the variables: I_{Male}, I_{Black}, and I_{Latino} are binary indicators representing groups who are male (relative to female), Black (relative to White), Latino (relative to White). The variables: I_{LessHS}, I_{HS}, and $I_{SomeColl}$ compare groups with completed bachelor's degrees to those without a high school diploma, those with a high school diploma, and those with some years of completed college, respectively.

Employing these models, I present the odds ratios estimating the differences between each treatment and control group pair across gender, race and ethnicity, and education during the periods before and after the ACA's implementation (see Table 3.3). To further facilitate interpretation of significant results, I estimated the predicted probabilities for each specified treatment group (e.g., males) compared with those of their respective control group (e.g., females). For the selected outcomes, I estimated the predicted probabilities using interaction plots for the conditional levels of the interacting variables (see Figures 3.1 and 3.2).

Results

Table 3.3 presents the trends of health care use and health status outcomes among adults by gender, race and ethnicity, and education from before and after the ACA went into effect in 2014. All groups exhibit declines in their use of emergency department and hospital inpatient care, although the extent of that reduction varies substantially. By contrast, trends in the use of health settings for regular doctor visits increased among all groups with less variability. Adults with the largest drops in their use of emergency department and hospital inpatient care—that is, men, Blacks, and people without a high school diploma—are the same groups with the greatest rise in their use of primary care in regular health care settings.

Results for trends of health status are less straightforward. Although all groups reported significant declines in their self-rated health, changes to the levels of diagnosed chronic health conditions operated in multiple different directions. According to Table 3.4, all groups experienced a rise in their diagnoses of diabetes and cardiovascular disease, but declines in their diagnoses of hypertension and asthma. Reported diagnoses of depression increased for some groups, including men, Blacks, Latinos, and those with at least some college levels of education. Other groups, including adults with high school and lower levels of education reported reduced levels of depression. Women and Whites, on the other hand, reported almost no change in depression diagnoses. Although somewhat mixed, the results in Table 3.4 provide substantial evidence that working-age adults experienced significant changes in health care use and health status outcomes. Consistent with the groups who have disproportionately benefitted from the ACA's

expansion in health insurance coverage, changes in health care and health status appear to be concentrated among the traditionally uninsured, including men, people of color, and people with fewer years of formal schooling. To test how the results in Table 3.3 withstand further scrutiny, I turn to the DID analysis.

In line with the descriptive evidence shown in Table 3.4, the odds ratios presented in Table 3.5 show that the ACA significantly reduced previous disparities in health care and health across gender, race and ethnicity, and education. Table 3.5 reports the regression-based estimates for the differential changes in health care outcomes, comparing groups across gender, race and ethnicity, and education. The first column shows the effects of the ACA on changes in social inequalities related to use of the emergency department as a site for health care. Emergency department use is considered an expensive source of care where people go as a last resort. Use of the emergency department is also considered a proxy for inaccessible or low-quality outpatient care (Sommers and Simon 2017). Health insurance could increase use of the emergency department by reducing the out-of-pocket costs associated with receiving care (Taubman et al. 2014).

Prior to the ACA, emergency department use was higher among women, Blacks, and individuals with less than high school levels of education than it was for men, Whites, and those with higher levels of education. Since the passage of the ACA, all groups exhibited lower use of the emergency department as a site for accessing health care and the treatment effects shown in Table 3.4 suggest that these declines unfolded uniformly across most groups. The only significant effect of the ACA on changes in the

disparity of emergency department use took place among women and men. According to the results from Model 1, the ACA increased the disparity in emergency department use between men and women. The effects of the ACA on this gender disparity, however, is relatively small and only marginally significant (OR = 1.05, SE = .019).

The ACA exhibited little effect on social inequalities in the use of hospital inpatient care with the exception of a significant change in the disparity between women and men. As shown in Model 1, the gender gap in the use of hospital inpatient care fell by approximately 10% in the first three years since the passage of the ACA. The remaining results in Table 3.5 show the ACA's effects on social inequalities in the use of primary care in regular health care settings. According to the findings from Models 1, 2, and 4, the ACA significantly reduced disparities in the use of primary health care by disproportionately enabling access to more care among men, Blacks, and adults without a high school diploma. Taken together, these findings suggest that all groups lowered their reliance on emergency department and hospital care in lieu of increasing their use of primary care. To assess whether and to what extent these new patterns of health care use translate to changes in social inequalities in health outcomes, I turn to Table 3.5.

Potentially reflecting increases in the use of primary care among newly insured groups, the passage of the ACA is associated with significant declines in social inequalities in health. As shown in Table 3.6, the ACA has had a particularly strong effect on social inequalities in the diagnoses of certain chronic health conditions, including hypertension and cardiovascular disease. The gender gap in these diagnoses fell by 14% and 24%, respectively. Black-White differences in hypertension fell by 19%,

while the disparity in hypertension between Latinos and Whites decreased by more than 14%. The ACA also helped smooth the education gradient in hypertension diagnosis. Notably, the hypertension gap between people without a high school diploma and those with a college degree fell by 21%.

To fully interpret the magnitude of the ACA's narrowing of social gaps in chronic health conditions, Figures 3.1 and 3.2 depict the estimated probabilities of having a diagnosis of hypertension and cardiovascular disease, respectively. The striking decline in hypertension among Blacks stands out in Figure 3.1. Whereas nearly one in five African-American adults reported having a diagnosis of high blood pressure in the years leading up to the ACA, the share of those who reported having hypertension since the passage of the ACA dropped to approximately one in 10. Significant reductions in the diagnosis of heart disease occurred among all groups across gender, race and ethnicity, and education (see Figure 3.2).

Together, the results from Tables 3.5 and 3.6 and Figures 3.1 and 3.2 provide robust empirical evidence of the impact of the ACA on outcomes related to health care and health status. Adults who have traditionally been excluded from health insurance due to their lack of attachments to labor market, marriage, and family institutions are currently exhibiting the most profound health benefits from the ACA. Results from this study therefore draw important attention to the institutional determinants of access to health care and raise important questions about the centrality of institutions for our knowledge of social inequalities in health.

Discussion & Conclusion

Recent passage of the Patient Protection and Affordable Care Act qualified nearly 30 million uninsured adults—approximately 75% of all adults without health insurance—as eligible for partially or completed subsidized health insurance, as of January 1, 2014 (Garfield et al. 2014). Prior to the ACA, U.S. healthcare policies required working-age adults to access health insurance through labor market, marriage, and family institutions (Seccombe 1993; Meyer and Pavalko 1996; Currie and Madrian 1999). Because the pathways expected to provide adults with access to health insurance are themselves highly stratified, coverage was lower for men, people of color, and adults with lower levels of formal schooling than it was for women, Whites, and those with higher levels of schooling. By providing adults with a new pathway for obtaining health insurance *decoupled from* their labor market, marriage, and family attachments, however, the ACA has dramatically increased coverage among those traditionally uninsured.

The results from this study show that the implementation of the ACA has increasingly narrowed social inequalities in outcomes related to health care and health status. Systematically uninsured and medically underserved groups, including men, people of color, and individuals with lower levels of formal schooling have begun to experience large and profound benefits from the ACA. Along with other, more advantaged adults, these groups have reduced their reliance on emergency department and hospital inpatient care in lieu of making use of primary care. Social inequalities in many chronic health conditions have subsequently declined since the passage of the ACA. Of course gaps in health care use and health status outcomes still exist, but the

changes in observed in this study may eventually translate to sustained wellness and longevity among groups who have been denied a healthy life for far too long.

By demonstrating the multiple ways that the ACA has helped to improve health among groups with the worst health profiles in the country, this study provides evidence of a potentially very simple explanation of social inequalities in health: that the equal provision of health insurance engenders a cascade of health benefits that ultimately reduce social inequalities in health. Certainly, material, psychosocial, behavioral, and biological factors are important for understanding social inequalities in health. These approaches can help us understand why some people have better or worse health than others when compared within societies, but they are of more limited use when we fail to consider how important individual- or household-level causes linked to health vary in their frequency or in their effects across institutional contexts (Olafsdottir 2007; Beckfield et al. 2015). Thus, our existing understanding of social inequalities in health may be predicated on a specific distribution of the social determinants of health and a set of material, psychosocial, behavioral, and biological factors that vary accordingly.

Institutions are both theoretically and empirically important for understanding disparities in health. Institutions are responsible for creating and maintaining stratification; they determine social relations by sorting and ranking people into social hierarchies. In addition to their central role in producing social stratification, institutions are essential for studying differences in health because they also "condition the operation of the social determinants of health" (Bambra and Beckfield 2012: 3). For example, as an important institution in all high-income countries, the welfare state provides resources

that make other factors, such as income, less compulsory for achieving and maintaining good health. Prior to the ACA, the provision of health insurance and, hence, health care, was reliant on labor market, marriage, and family institutions.

By introducing a dramatic policy change to the U.S. healthcare system that separates access to health insurance and, hence, health care from the institutional attachments of adults, the ACA provides a historic opportunity to consider the institutional determinants of health and draws attention to the centrality of institutions for our knowledge of health inequalities. This study takes advantage of the ACA's expansion of health insurance to working-age adults. The ACA is considered to be the most dramatic reform to the U.S. healthcare system in over half a century. By providing adults with a new pathway to access health insurance, the ACA tore through the endogenous link between health insurance and health status that has long been institutionally determined. Although not without its own limitations, the ACA gives adults access to coverage unrestricted by labor market, marriage, and family institutions. More adults than ever before now have the opportunity to obtain timely and reliable medical care.

Table 3.1. Comparison of Health Care and Health Status Outcomes among Adults in High-Income Countries.

Panel A. *health care access*

	% of adults who					
	Saw a doctor or nurse last time they needed care		Had problems with access because of cost			Had debt from care
	Same day or next day [1]	Waited 6 days or more[1]	Did not see doctor when sick or did not get recom-mended care [1]	Skipped consultation due to costs [2]	Did not fill Rx or skipped doses [1]	Had serious problems paying or was unable to pay medical bills [1]
Australia	65	14	18	13.2	12	10
Canada	45	33	8	4.4	10	9
France	62	17	9	6	7	13
Germany	66	16	23	17.5	6	7
Netherlands	72	5	4	1.9	3	11
New Zealand	78	5	12	10.6	7	6
Norway	45	28	8	5.6	6	10
Sweden	57	25	6	5.7	7	9
Switzerland	93	2	9	6.7	4	9
United Kingdom	70	8	5	2.4	2	3
United States	57	19	28	24.1	21	24

Panel B. *health care use*

	Primary care	Hospital care	
	Consultations[a,2]	Discharges [b,2]	Avg. length of stay [c,2]
Australia	6.6	16,658	5.8
Canada	7.6	8,283	7.7
France	4.6	18,562	10.2
Germany	9.2	23,670	9.5
Netherlands	5.7	11,488	5.6
New Zealand	4.1	13,954	9.3
Norway	4.0	19,818	6.8
Sweden	2.9	16,265	6.0
Switzerland	4.0	16,860	9.5
United Kingdom	5.0	13,745	7.7
United States	4.1	13,614	6.2

Table 3.1, Cont.

Panel C. *health status*

	Morbidity		Mortality			Life expectancy
	% of adults with diabetes [d,3]	% of adults with 2 or more chronic conditions [3]	Total [e,4]	Ischemic heart disease [e,4]	Amenable mortality [e,f,4]	At age 40 [5]
Australia	5.1	40	429.0	52.3	62	43.5
Canada	7.4	31	387.8	53.7	78	42.8
France	5.3	29	389.5	23.8	61	43.1
Germany	7.4	25	436.9	62.1	83	41.5
Netherlands	5.5	29	415.5	32.0	72	42.2
New Zealand	7.3	35	411.2	70.6	87	42.6
Norway	6.0	33	407.6	48.5	64	42.5
Sweden	4.7	30	392.4	61.2	69	42.9
Switzerland	6.1	22	360.3	43.4	55	43.7
United Kingdom	4.7	21	430.3	60.3	85	42.0
United States	12.8	40	487.1	70.3	112	40.9

Notes

[a] Number per capita.

[b] Inpatient care discharges (all hospitals), per 100,000 in the total population.

[c] Inpatient care average length of stay (all hospitals), days.

[d] Data cover those aged between 20 and 79 years old with Type 1 or Type 2 diagnosed diabetes.

[e] Age-standardized death rate per 100,000 in the total population.

[f] Mortality amenable to health care, deaths per 100,000 (2000-2014). Amenable mortality causes based on Nolte and Mckee (2004).

Sources

[1] Estimates as reported by the 2010 Commonwealth Fund International Health Policy Survey (Schoen et al. 2010).

[2] OECD Health Statistics, 2010.

[3] The Commonwealth Fund International Health Policy Survey of Sicker Adults, 2010.

[4] WHO Mortality Database, 2010.

[5] Five-year life table estimates from the Human Mortality Database, 2010-2014.

Table 3.2. Descriptive Statistics of Control Variables in the Pre- and Post-ACA Study Periods. Adults aged 18-64, NSDUH 2009-2012 and 2014-2016.

Concept	Variable	Description	Coding scheme	Pre-ACA %	Post-ACA %	
Gender	Female	Is the respondent female?	0 = no	50.8	50.9	
			1 = yes (Ref)			
Race/Ethnicity	White	Is the respondent non-Hispanic White?	0 = no			
			1 = yes (Ref)	69.9	67.4	***
	Black	Is the respondent non-Hispanic Black?	0 = no			
			1 = yes	13.1	13.6	
	Latino	Is the respondent of Hispanic/Latin origin?	0 = no			
			1 = yes	17.0	19.0	***
Age	18 to 25	Is the respondent 18-25 years old?	0 = no			
			1 = yes	17.8	17.6	
	26 to 34	Is the respondent 26-34 years old?	0 = no			
			1 = yes	18.9	19.3	
	35 to 49	Is the respondent 35-49 years old?	0 = no			
			1 = yes	32.4	30.7	***
	50 to 64	Is the respondent 50-64 years old?	0 = no			
			1 = yes (Ref)	30.9	32.4	**
Education	Less than HS	Is the respondent's highest level of education less than high school?	0 = no			
			1 = yes	13.8	12.9	**
	HS	Is the respondent's highest level of education high school or GED equivalent?	0 = no			
			1 = yes	30.3	26.7	***
	Some college	Is the respondent's highest level of education some college?	0 = no			
			1 = yes	27.3	31.3	***
	College +	Is the respondent's highest level of education college or more?	0 = no			
			1 = yes (Ref)	28.5	29.1	
Income	< 100% FPL	Is the respondent's household income below the Federal Poverty Line (FPL)?	0 = no			
			1 = yes	14.9	16.5	***
	100 - 199% FPL	Is the respondent's household income greater than 100% of the FPL and less than 199% of the FPL?	0 = no			
			1 = yes	19.7	19.3	
	< 200% FPL	Is the respondent's household income greater than or equal to 200% of the FPL?	0 = no			
			1 = yes	65.4	64.2	*
	Welfare	Did the respondent participate in any of the following programs in the past year: welfare or Temporary Assistance for Needy Families (TANF), Supplemental Security Income (SSI), or Supplemental Nutrition Assistance Program (SNAP) (food stamps)?	0 = no			
			1 = yes (Ref)	19.4	21.4	***
Health status	SRH	Did the respondent report their general health status as fair or poor, rather than as excellent, very good, or good?	0 = no			
			1 = yes (Ref)	11.5	12.3	**
	Chronic illness	Did the respondent report having any of the following health conditions in their lifetime: asthma, chronic bronchitis, cirrhosis of the liver, diabetes, heart disease, hepatitis, hypertension, or HIV?	0 = no			
			1 = yes (Ref)	31.4	31.6	

Two-tailed adjusted t-test (Probability > t): $^{*}p<.05$, $^{**}p<.01$, $^{***}p<.001$

Note : the numbers and percentages reported are based on sample weights.

Table 3.3. Self-Reported Trends in Health Care and Health Status Outcomes. Adults aged 18-64, NSDUH 2009-2012 and 2014-2016.

Panel A. *health care use*

	Emergency department		Hospital care		Regular health care setting	
	Pre	Post	Pre	Post	Pre	Post
Gender						
Female	31.0	29.6 *	11.1	10.7	85.1	86.5
Male	26.2	24.5 *	7.6	5.9 **	70.2	74.5
Race/Ethnicity						
White	26.6	25.3 *	8.9	8.7	79.8	81.0 *
Black	40.6	36.2 **	12.5	10.6 **	80.5	83.2 **
Latino	27.4	27.2	8.7	8.1	68.3	70.0
Education						
Less than HS	38.7	34.2 **	11.7	10.1 **	66.2	70.2 **
HS	32.5	31.0	10.0	9.8	73.3	74.1
Some college	29.9	28.2 *	9.7	8.9 *	79.5	80.9 *
College +	19.3	18.7	7.3	6.8	85.6	85.9

Panel B. *health status*

	SRH		Asthma		CVD	
	Pre	Post	Pre	Post	Pre	Post
Gender						
Female	62.2	59.9 ***	13.1	12.2 **	4.6	2.2 ***
Male	62	59.1 ***	9.8	8.5 ***	5.7	3.7 ***
Race/Ethnicity						
White	65.7	63.2 ***	11.8	10.8 **	4.6	3.1 **
Black	55.9	55.2	12	11.5	5.9	3.4 ***
Latino	52.1	49.5 **	9.5	8 **	3	1.7 ***
Education						
Less than HS	38.6	37.3	11	8 ***	4.9	3.1 ***
HS	55.5	50.5 ***	10.9	9.5 **	5.5	3.4 ***
Some college	64.5	60.9 ***	12.3	11.7 *	5.6	2.9 ***
College +	78.2	76.2 **	11.4	11	4.4	2.5 ***

Table 3.3, Cont.

Panel C. *health status, cont.*

	Depression		Diabetes		Hypertension	
	Pre	Post	Pre	Post	Pre	Post
Gender						
Female	19	19	6.4	7.7 ***	18.2	16.4 ***
Male	9.1	10.5	6.5	7.3 **	20	16.1 ***
Race/Ethnicity						
White	16.7	17.6	5.8	6.9 ***	19.7	16.9 ***
Black	7.6	8.6	9.1	9.8	26	22.1 ***
Latino	8.1	9.5	6.9	8.1 **	11.3	9.5 **
Education						
Less than HS	11.9	10.8	8.3	10.3 **	16	12.6 ***
HS	13.1	12.9	7.3	8.9 ***	21.5	18 ***
Some college	15.6	17.2	6.3	7.4 **	19.6	16.4 ***
College +	14.7	15.6	4.7	5.3 *	17.6	15.6 **

Two-tailed adjusted t-test (Probability > t): *p<.05, **p<.01, ***p<.001

Note: the numbers and percentages reported are based on sample weights.

Table 3.4. Odds Ratios for Models Predicting the Effects of the ACA on Social Inequalities in the Use of Health Care across Different Settings. Adults aged 18-64, NSDUH 2009-2012 and 2014-2016.

	Difference-in-differences		
	Emergency department	Hospital inpatient	Primary care setting
Model 1			
Male vs. Female	1.050 **	.908 **	.859 ***
	(.019)	(.029)	(.022)
Model 2			
Black vs. White	.985	.961	.820 ***
	(.025)	(.039)	(.033)
Model 3			
Latino vs. White	1.040	.932	.902 **
	(.025)	(.039)	(.035)
Model 4			
< HS vs. College +	1.014	.942	.899 ***
	(.031)	(.047)	(.028)
Model 5			
HS vs. College +	1.029	.942	.927
	(.026)	(.041)	(.039)
Model 6			
Some college vs. Col	1.043	.934	.955
	(.027)	(.041)	(.045)

*p<.05, **p<.01, ***p<.001 (two-tailed tests)

Table 3.5. Odds Ratios for Models Predicting the Effects of the ACA on Social Inequalities in Health Outcomes. Adults aged 18-64, NSDUH 2009-2012 and 2014-20

	Difference-in-differences					
	SRH [a]	Diabetes	Hypertension	Depression	Asthma	CVD [c]
Model 1						
Male vs. Female	1.024	1.025	.860 ***	.819 ***	1.083 **	.756 ***
	(.019)	(.043)	(.033)	(.021)	(.028)	(.075)
Model 2						
Black vs. White	1.032	.860 ***	.813 ***	1.247 ***	.963	.933 ***
	(.027)	(.028)	(.014)	(.054)	(.034)	(.015)
Model 3						
Latino vs. White	1.050 *	.902 **	.856 ***	1.192 ***	.933	.927 ***
	(.024)	(.022)	(.024)	(.043)	(.033)	(.015)
Model 4						
< HS vs. College +	.981	1.101	.790 ***	.931	.827 ***	.827 ***
	(.030)	(.077)	(.039)	(.039)	(.036)	(.036)
Model 5						
HS vs. College +	.859 ***	1.112	.901 **	.973	.906 **	.906 **
	(.023)	(.066)	(.034)	(.032)	(.032)	(.032)
Model 6						
Some college vs. Col	.912 **	1.072	.950	1.136 ***	.981	.981
	(.024)	(.066)	(.036)	(.036)	(.033)	(.032)

*p<.05, **p<.01, ***p<.001 (two-tailed tests)

[a] Self-rated health.

[b] Cardiovascular disease.

Figure 3.1. Estimated Values Representing the Probability of Having a Diagnosis of Hypertension among Adults Before and After the Implementation of the ACA.

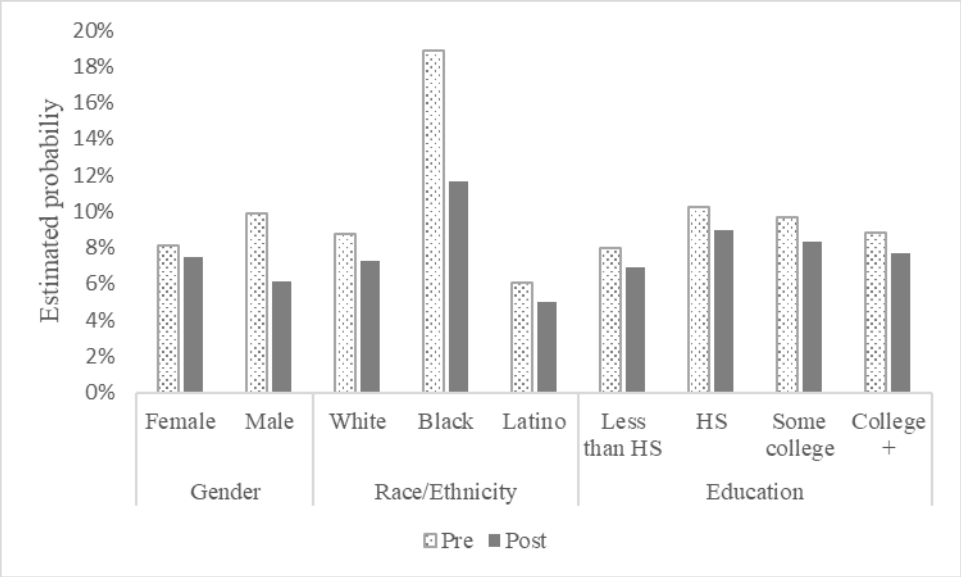
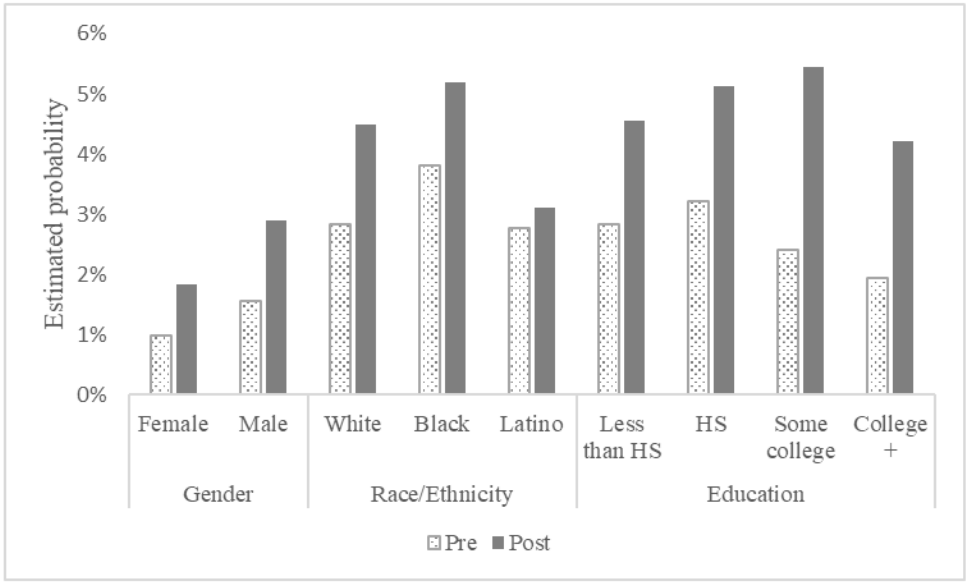


Figure 3.2. Estimated Values Representing the Probability of Having a Diagnosis of Heart Disease among Adults Before and After the Implementation of the ACA.



Chapter 4:

Health Care beyond the Gates: Investigating the Effects of the ACA on Health-Related Outcomes of Previously Incarcerated Men

Introduction

Recent implementation of the Patient Protection and Affordable Care Act (ACA) leverages a new opportunity to explore the paradoxical relationship between health and incarceration observed in the U.S. criminal justice system. Despite entering jails and prisons with significantly higher and more severe levels of illness and disease than the general population, individuals who are incarcerated often have lower mortality and longer life expectancies than their counterparts on the outside (e.g., Patterson 2010; Spaulding et al. 2011). The health benefits associated with incarceration are fleeting, however, as most formerly incarcerated individuals lack health insurance coverage, lose access to health care, and face exacerbated health issues upon their release (e.g., Binswanger et al. 2007). Though researchers share a consensus on the empirical findings concerning the relationship between health and incarceration, there is less agreement about its causes. Some scholars have argued that the provision of health care to individuals who would otherwise be without it plays a key role in the paradoxical health benefits associated with incarceration (Patterson 2010). Our ability to explore the effects of health care on the health benefits of incarceration, however, has been severely limited.

Adults involved in the criminal justice system have historically had very little access to health care outside of jail and prison. Since the mid-20th century, U.S.

healthcare policies have required working-age adults to access health insurance through labor market, marriage, and family institutions (Seccombe 1993; Meyer and Pavalko 1996; Currie and Madrian 1999). These policy arrangements helped employed, married, and parenting adults gain coverage through the benefits derived from their institutional attachments, but offered unemployed, unmarried, and childless adults little protection against the risk of being uninsured. As the pathways expected to provide access to coverage are themselves highly stratified, the risk of being uninsured has been particularly high for men with histories of incarceration (Mallik-Kane and Visher 2008). The intersection between individuals outside of traditionally insured groups and those who with a history of incarceration is so large, in fact, that over one-third (35%) of adults newly eligible for Medicaid under the ACA are estimated to have spent time in jail or prison (DiPietro 2013).

In this study, I leverage the timing of the ACA's implementation as a "natural experiment" to explore the institutional determinants of health. In doing so, I aim to enhance our understanding of the relationship between incarceration and health. With data from the National Survey on Drug Use and Health (NSDUH), I use a difference-in-differences approach to compare measures of health insurance, health care, and health status among low-income men from before and after key provisions of the ACA became active in 2014. All men of lower income are patterned by social determinants linked to low levels of health insurance, health care, and health status, but there are important reasons to expect that the ACA would have unique consequences for those involved in the criminal justice system. Emphasizing the U.S. criminal justice system as not only an

important axis of stratification but also an institutional determinant of health, I compare whether and how the ACA differentially affects these outcomes for men with and without histories of incarceration.

By investigating the effects of the ACA on a multitude of health-related outcomes among formerly incarcerated men, this study advances our understanding on the relationship between incarceration and health and broadens our current conceptualizations of the determinants associated with health. A growing body of work provides evidence on the relationship between incarceration and health but less is known about the underlying mechanisms that connect them (Wildeman and Mueller 2012). Some scholars argue that the provision of health care provided by the criminal justice system is the primary factor responsible for the paradoxically positive health effects of incarceration observed among inmates behind bars (Patterson 2010). Our existing knowledge of these associations, however, remains limited to the extent that formerly incarcerated adults have been systematically deprived of health care outside the gates of correctional facilities (e.g., Mallik-Kane and Visher 2008). Understanding how the ACA affects outcomes related to health insurance, health care, and health status among formerly incarcerated men, therefore, has the capacity to deepen and advance our knowledge of the relationship between incarceration and health and to illuminate the institutional determinants of health.

The U.S. Criminal Justice System

The United States is, by definition and comparison, exceptional with respect to its rate of incarceration (Wildeman and Wakefield 2014: 3). After steadily rising for nearly

forty years, the number of people incarcerated in the United States has hovered close to 2.2 million throughout the last decade (Kaeble and Cowhig 2018). Even after recent declines in the total number of people held in prisons and jails, the United States continues to incarcerate a much higher fraction of its population than any other wealthy nation in the world. People living in the United States are more than 10 times as likely to be in prison or jail as people living in Denmark, Sweden, and the Netherlands and four times as likely compared to residents of the United Kingdom (Aebi, Tiago, and Burkhardt 2016; Coyle et al. 2016; Kaeble and Cowhig 2018).

Fully 8% of the total population of adults in the United States has a felony conviction, suggesting that this segment of the population has a history of incarceration (Shannon et al. 2017). According to point-in-time estimates, over 7 million adults (5%) are managed within the criminal justice system on any given day (Glaze and Kaeble 2014). About 1.5 million adults were incarcerated in prisons across the U.S. by the end of 2013. Over 700,000 additional individuals are incarcerated in local jails over the course of the same year. Nearly 5 million adults involved in the criminal justice system are under community supervision. Most (82%) of those under community supervision through probation while the remainder are on parole.

The risk of ever spending time behind bars in jail or prison does not randomly or equally affect all subgroups in the population. Rather, the risk of incarceration is characterized by its systematic targeting of particular segments of the population (Garland 2001). Incarceration is particularly concentrated among men, African Americans, and people with low levels of formal schooling. No other group suffers the

overwhelming likelihood of imprisonment experienced by young Black men in the United States who do not complete high school (Pettit and Western 2004; Western and Wildeman 2009; Pettit 2012; Travis et al. 2014). Fully 5% of White men, 12% of Latino men, and 26% of Black men born in the late-1970s spent at least one year in prison by the time they reached their thirties. For those Black men who did not complete high school, the odds of imprisonment increased to over 60% (Pettit and Western 2004).

The Health of People Entering Jail and Prison

As the U.S. criminal justice system selects individuals from the most vulnerable segments of society, people who spend time in jail or prison are particularly disadvantaged in terms of their health. Approximately 44% of individuals in state and federal prison report having ever had a chronic condition, compared to 31% of individuals in the general population (Maruschak, Berzofsky, and Unangst 2015). The incidence of hypertension and asthma is particularly high among people who are incarcerated (Binswanger, Krueger, and Steiner 2009; Maruschak et al. 2015). Rates of infectious diseases—such as hepatitis C, tuberculosis, and HIV/AIDS—are also much higher among jail and prison inmates than in the general population (National Commission on Correctional Health Care 2002; Wilper et al. 2009). According to recent estimates, the prevalence of HIV/AIDS among people in state or federal prison is over three times that for the population of adults as a whole (Maruschak 2006; Maruschak et al. 2015). Worse yet, levels of tuberculosis and hepatitis are both over 10 times as high (Maruschak et al. 2015).

Individuals behind bars exhibit a greater burden of mental health problems than do people in the general population. Approximately 35% of men in state or federal prison and 41% in local jail report having been told in the past by a medical health professional that they had a mental health disorder, compared to roughly 15% of adult men in general population (Bronson and Berzofsky 2017). The onset of mental health issues is also greater among people who are incarcerated. Fully 14% of men in state or federal prison and 25% of men in local jail report having symptoms consistent with serious psychological distress (Bronson and Berzofsky 2017). By contrast, the share of people with serious psychological distress in the general population is around five percent for all adults and three percent for men (SAMHSA 2013).

Health problems related to addiction are particularly high in the incarcerated population as the majority of adults in jail or prison meet the criteria for substance abuse or dependence (Karberg and James 2005; Bronson and Berzofsky 2017). Approximately 24% of inmates in state prison, 16% in federal prison, and 47% in local jail report experiences consistent with a history of alcohol abuse or dependence (Mumola 1999; Karberg and James 2005), whereas the same is true for about 8% of adults in the general population (National Council on Alcoholism and Drug Dependence 2015). Addiction problems related to illicit drugs are even worse for people behind bars. More than half (58%) of the population of adults in state prison and two-thirds (63%) of those in local jail meet the criteria for drug abuse or dependence (Bronson et al. 2017). In comparison, the segment of adults in the general population who meet the criteria for drug abuse or dependence is about five percent (Bronson et al. 2017).

The Effects of Incarceration on Health

Despite their otherwise worse levels of health, several studies find that inmates die at lower rates than expected even after being matched to the general population on key characteristics such as age, race and ethnicity, and sex (e.g., Patterson 2010; Spaulding et al. 2011). The health benefits linked to incarceration, however, typically end at the gates of correctional facilities as the period immediately following release from jail and prison is associated with a severely heightened risk of death (Binswanger et al. 2007; Krinsky et al. 2009; Lim et al. 2012; Merrall et al. 2010). In the first two weeks after being released from prison, the rate of death among formerly incarcerated individuals is 13 times higher than the rate for the general population (Binswanger et al. 2007). The leading cause of death during this post-release period is overwhelmingly drug overdose, resulting from the combination of exacerbated stress and poor continuity of health care for former inmates on the outside (Binswanger et al. 2011).

Premature death following release from jail and prison is also observed in the longer term as incarceration harms the health of former inmates in multiple ways long after their formal sentences are served. Indeed, incarceration is considered a chronic stressor (Pearlin 1989). It introduces acute shocks to one's immune system that accumulative over time, causing dysfunction that can last for long periods and result in early death (Pridemore 2014). As the stress related to incarceration persists beyond the confines of correctional facilities, having spent any amount of time behind bars is considered more consequential for health than the length of incarceration itself

(Schnittker and John 2007; Massoglia 2008a). Spending time in jail or prison therefore exerts negative effects on health that may last long after incarceration.

In terms of physical health, spending time in jail or prison increases the occurrence of chronic health problems (Schnittker and John 2007). Incarceration also increases susceptibility to infectious diseases and stress-related illness, such as hypertension and heart disease (Massoglia 2008b). As individuals reach their middle ages, having spent time in prison adds to the deterioration of physical health functioning that naturally occurs over the life course (Massoglia 2008b). In terms of mental health, the stress associated with imprisonment puts formerly incarcerated individuals at higher risk for psychological problems and depression (Schnittker and John 2007; Massoglia 2008a). The lifetime risks of several psychiatric disorders, including post-traumatic stress disorder, dysthymia, and intermittent explosive disorder are substantially higher among individuals with a history of incarceration relative to those without any history of incarceration (Schnittker, Massoglia, and Uggen 2012).

Health Care among the Formerly Incarcerated

With a constitutional right to health care behind bars, most people serving time in jail or prison receive attention from healthcare professionals and the majority of inmates with health problems report receiving prescription medication or some other form of medical treatment during their incarceration (Mallik-Kane and Visher 2008; Maruschak et al. 2015). Indeed, more than 80% of inmates in state or federal prison report having seen a doctor, nurse, or other health care professional since admission (Maruschak et al. 2015) Further, approximately 80% of inmates in state prison and 86% of inmates in

federal prison see a doctor or nurse when sick during their incarceration (Wilper et al. 2009). Among inmates with a mental health condition ever treated with a psychiatric medication, only 26% in federal prison, 30% in state prison, and 39% in local jail were taking a psychiatric medication at the time of arrest, whereas 69%, 69%, and 46% were restarted on a psychiatric medication after admission (Maruschak et al. 2015).

The widespread accessibility of health care that people have during their incarceration, however, typically stops at the gates of correctional facilities. Estimates vary but researchers approximate that 80-90% of adults leaving jail and prison lack health insurance coverage at the time of their release (Mallik-Kane and Visher 2008). Without health insurance, most people lose access to needed health care. Whereas the majority of formerly incarcerated men with physical health conditions receive treatment in prison, less than half receive treatment in the period 8-10 months after release (Maruschak et al. 2015). Similar drops in the use of health care in the months following release from prison are found for formerly incarcerated people who once received care for mental health conditions or substance use disorders (ibid).

The Affordable Care Act

Recent implementation of the Patient Protection and Affordable Care Act (ACA) leverages a new opportunity to explore the paradoxical relationship between health and incarceration observed in the U.S. criminal justice system. Previously uninsured adults may now qualify for affordable health care through two new pathways to coverage established by the ACA. The first pathway is through the Medicaid expansion, which increases the eligibility criteria for Medicaid coverage to individuals with annual

household income levels up to 138% of the Federal Poverty Line (FPL). The second pathway is through the creation of the Health Insurance Marketplace (Marketplace), which is a service that allows individuals to compare and purchase private insurance plans. To help individuals pay for health insurance purchased through the Marketplace, the ACA offers monthly subsidies to people with annual household income levels up to 400% of the FPL (Garfield, Licata, and Young 2014).

Though policymakers intended to implement the ACA uniformly across states, the U.S. Supreme Court ruled the federal mandate to expand Medicaid as unconstitutional—giving states the option to participate in the expansion (Shaw et al. 2014). Accordingly, when the ACA went into effect on January 1, 2014, an estimated 4.8 million adults fell into a "coverage gap," wherein their income would have qualified them for Medicaid under the ACA's new eligibility rules, but their state declined to expand Medicaid (Wachino et al. 2014). Nevertheless, the ACA qualified nearly over 15 million working-age men for partially or completely subsidized health insurance on January 1, 2014 (Garfield et al. 2014). This dramatic transformation in policy expanded health care access for nearly 75%[1] of working-age men in need of insurance coverage. Such widespread improvements in access to affordable health care should therefore greatly increase coverage for most uninsured men, but there are important reasons to expect that

[1] There were 21 million men without insurance in 2013. Of these men, 18 million met income requirements for ACA eligibility. About 2.4 million fell into the coverage gap and experienced no change in their access to affordable health care when the ACA went into effect in January 2014.

the ACA would have differential effects for men with and without histories of incarceration.

On one hand, we might expect that the ACA will have significantly greater benefits among men with histories of incarceration. Previously incarcerated men are more likely to be newly eligible for health insurance through the ACA and to receive assistance with the process of enrolling in a new coverage plan. Estimates vary, but individuals released from jail and prison made up 17-35% of all uninsured adults newly eligible for health insurance under the ACA (DiPietro 2013; Regenstein and Rosenbaum 2014). In an effort to help these uninsured adults realize their entitlement to health insurance coverage, the U.S. Department of Justice has identified the ACA as a tool to connect reentering adults with health care in their communities and an increasing number of jurisdictions have begun adopting this strategy in their jail and prison release programs. Whereas only 57% of ACA-eligible adults are projected to enroll in available health insurance programs under regular circumstances (CBO 2012), directed outreach efforts—like those taking place in criminal justice settings nationwide—are predicted to increase potential enrollment to 75% (Holahan and Headen 2010).

Changes to health insurance, health care, and health status generated by the ACA might be particularly significant for men with histories of incarceration because of their substantial health needs that have otherwise gone unmet. Compared to their counterparts with no history of incarceration, previously incarcerated men exhibit higher and more severe levels of chronic illness, infectious disease, mental health issues, and substance abuse and dependence problems (National Commission on Correctional Health Care

2002; Wilper et al. 2009; Schnittker et al. 2012; Maruschak et al. 2015; Bronson and Berzofsky 2017). Although the majority of inmates with health problems report receiving prescription medication or some other form of medical treatment during their incarceration, the use of health care among formerly incarcerated individuals with health needs quickly dissipates in the months following release (Mallik-Kane and Visher 2008; Wilper et al. 2009; Maruschak et al. 2015).

On the other hand, there are many important reasons to expect that the ACA will have little impact for formerly incarcerated men. The very nature of having involvement with the criminal justice system may itself impede the potential effects of the ACA among previously incarcerated men. Though the criminal justice system has identified the ACA as a tool for connecting adults with health care upon their release from jail and prison in an effort to assist them in their transitions back to their communities, enrolling the justice-involved population in government-sponsored insurance programs could also be viewed as a technique for surveillance. Individuals convicted of criminal activity are subject to increasingly heightened scrutiny. The rise of surveillance and supervision was intended to improve public safety, but this monitoring technique has only widened the net of criminal justice involvement by imposing new and extending existing punishments on those in violation of pervasive regulations. Participation in the ACA, in particular, and in the health care system, in general, may be particularly low among previously incarcerated men because they may fear their involvement in a government program that keeps and links formal records will jeopardize their freedom (Goffman 2009; Brayne 2014).

Data

To examine whether and how the ACA affects outcomes related to health insurance, health care, and health status among formerly incarcerated men, I use data from the National Survey on Drug Use and Health (NSDUH). The NSDUH is a nationally representative, cross-sectional survey of the non-institutionalized population in the U.S. conducted annually by the Substance Abuse and Mental Health Services Administration (SAMHSA). For at least two reasons, data from the NSDUH are particularly useful for this investigation.

First, data from the NSDUH are important for studies exploring health-related outcomes in the context of the ACA because the survey identifies and oversamples populations who share characteristics with those outside of traditionally insured groups. For example, through its use of an independent, multistage area probability sample of all states and the District of Columbia, the NSDUH was designed to oversample young adults ages 18 to 25, Blacks, Latinos, and residents of rural areas (Gfoerer, Larson, and Colliver 2007). To promote their inclusion in the survey and to accommodate the cultural and linguistic needs of the Latino population, interviews are available in both English and Spanish (Kennet and Gfoerer 2005). The NSDUH also prioritizes the inclusion of harder-to-reach populations by surveying individuals living in non-institutionalized group quarters and temporary housing, including shelters, college dormitories, migratory worker camps, and halfway houses (SAMHSA 2017).

The NSDUH further stands out as a unique and effective dataset for this study because of its collection of data on involvement with the criminal justice system.

Questions gather information on the extent to which respondents have had involvement with the criminal justice system through arrest, incarceration, probation, and parole. All questions ask respondents to report on their contact with the criminal justice system in the preceding 12 months. Thus, the data permit an analysis of the critical period of prisoner reentry with respect to health outcomes.

Sample

This study relies on samples of low-income men drawn from before and after access to health insurance was transformed by the ACA. The ACA mandated several major changes to the U.S. healthcare system, but the reforms related to this research include only the creation of the Health Insurance Marketplace and the Medicaid expansion. These policy changes are considered the most comprehensive reforms of the ACA and were intended to make health insurance accessible for all U.S. citizen adults (Garfield et al. 2014).

The ACA was enacted in 2010 and was designed to roll out its reforms on the U.S. healthcare system over four years and beyond. The enrollment period for new insurance plans through the Marketplace began in 2013, but the benefits of this coverage did not become active until January 1, 2014. Likewise, individuals newly eligible for Medicaid could begin their enrollment in 2013, but could not access their benefits until January 1, 2014 (Wachino et al. 2014). In view of this timing, I treat 2013 as a washout period that was excluded from analyses and defined the period *after* adults' access to health insurance was transformed by the ACA as January 2014 through December 2016 (*post-ACA* study period). To include the period before the ACA was signed into law in

2010, and to appropriately compare years close together in time, I defined the period *before* access to health insurance among adults was transformed by the ACA as January 2009 through December 2012 (*pre-ACA* study period).

The analytic sample consists of low-income men between 18 and 64 years of age drawn from the pre- and post-ACA study periods. Consistent with existing indicators of low-income individuals and families, only men with a household income up to two twice the Federal Poverty Line (FPL) qualified for membership in the study sample as a "low-income" person. In 2015, the FPL for a family of four with two children was $24,036 (U.S. Department of Health and Human Services 2015). In order to more accurately take account of only those whose access to health insurance was transformed by the ACA, the sample also excludes adults who reported they were currently disabled. Respondents from the cross-sectional waves of the 2009-2012 NSDUH data make up the sample in the pre-ACA period, (n = 29,170) while those from the 2014-2016 waves comprise the sample in the post-ACA period (n = 21,245).

Measures

This study focuses on outcomes related to health insurance coverage, health care use, and health status. I therefore use three distinct sets of dependent variables in my analyses. All outcomes used in the analysis are based on self-reported information in the NSDUH.

The first outcome of interest is the likelihood of being *uninsured*, which I measure using a single binary variable that indicates whether a person did (0) or did not (1) have health insurance coverage in the past year. I classify individuals as being uninsured if

they reported being without health insurance at the time of the interview, based on their responses to a set of questions asking about their state of coverage across multiple different plans. Individuals are also classified as uninsured if they answered affirmatively to a question asking: *During the past 12 months, was there any time when you did not have any kind of health insurance or coverage?* The uninsured measure is therefore representative of individuals in the study sample without year-long, continuous coverage of any kind, and is based on information gathered from questions asked to respondents in the same way across each year of the study period.

The second set outcome of interest is related to the use of health care. Three binary variables indicated whether (1) or not (0) respondents reported that they: were treated in an emergency room, stayed overnight or longer as an inpatient in a hospital, or visited a medical provider (including a doctor, nurse, physician assistant, or nurse practitioner) in a health setting (including a doctor's office, a clinic, or some other place) during the past 12 months.

The third outcome of interest is related to health status. To measure health status, I rely on indicators of self-reported health and diagnoses of certain chronic medical conditions. Although subjective, self-rated health is repeatedly found to be correlated with objective measures of health, including mortality (e.g., Idler and Benyamini 1997; DeSalvo et al. 2006; Phillips et al. 2010). Self-rated health is also considered a global measure of health that captures the full range of possible diseases and limitations (Idler and Benyamini 1997). Consistent with existing work, I measure self-rated health using a single binary variable to indicate whether (1) or not (0) respondents reported their overall

health as excellent or very good. Chronic health conditions are also important to investigate because individuals with these medical issues likely have the most to gain from coverage expansion (McWilliams 2009). Following prior work (Baicker et al. 2013), I measure diagnoses of chronic health conditions using three binary variables that indicated whether (1) or not (0) respondents reported ever having been diagnosed with asthma, diabetes, or hypertension.

The key explanatory variables measure the implementation of the ACA and history of incarceration. The *ACA* variable is a dichotomous indicator that measures the period before (0) and after (1) the Health Insurance Marketplace and the Medicaid expansion went into effect. I measure the effects of *incarceration* using a single binary variable that indicates whether (1) or not (0) a person reported having spent any time in jail or prison during their lifetime.

To control for the confounding effects of factors related to the outcome of interest, I include additional measures of sociodemographic traits and health status. These covariates include indicators of race and ethnicity, age, employment status, marital status, parenting status, household income, receipt of government assistance, and the incidence of certain illnesses, including chronic bronchitis, cirrhosis of the liver, heart disease, hepatitis, and HIV/AIDS. The qualitative descriptions and coding schemes for these control variables, as well as the weighted means of these measures in the pre- and post-ACA study periods are shown in Table 4.1.

Methods

The aim of this investigation is three-fold: to explore the effects of the ACA on outcomes related to (1) health insurance coverage, (2) the use of health care, and (3) health status among men involved in the criminal justice system. To begin the investigation, I first summarize the trends of health insurance coverage, health care use, and health status among men in the study sample from the pre-ACA period to the post-ACA period. Using survey weights to adjust sample characteristics to be nationally representative, I present these trends across categories criminal justice involvement in Table 4.2.

Next, I leverage the timing of the ACA as a "natural experiment" to estimate the trends of health insurance coverage, health care use, and health status using a "difference-in-differences" framework. The basic approach in a DID analysis is to compare the difference in outcomes between a treatment group (i.e., men with a history of incarceration) and a control group (i.e., men with no history of incarceration) at time points before (difference 1) and after (difference 2) a policy intervention. Average changes over time in the outcomes of the control group are then subtracted from average changes over time in the treatment group (difference 2 – difference 1). This double differencing procedure removes both the effect that could result from permanent differences between the two groups as well as the effect of changes over time in the treatment group that could arise from causes unrelated to the intervention.

For each outcome of interest, I estimate an interaction effect between the ACA and incarceration variables. This interaction term represents the "treatment effect" in each

DID model, reflecting the average changes in the outcome of interest over the study period for the group of men with a history of incarceration (i.e., the treatment group), subtracted by these changes among the group of men with no history of incarceration (i.e., the control group). All models estimate the odds ratios for the outcome of interest, net of control variables. To facilitate even greater interpretation of my results, I also estimate the predictive margins for each outcome of interest. I estimate these predictive margins using interaction plots for the conditional levels of the *ACA* and *incarceration* variables.

Results

Table 4.2 presents the trends of health insurance coverage, health care use, and health status among low-income men with and without a history of incarceration from before and after the ACA went into effect in 2014. Panel A shows changes in the risk of being uninsured. According to these results, the uninsured rate of all low-income men declined significantly following the implementation of the ACA, especially among those with a history of incarceration. The uninsured rate decreased approximately 12 percentage points for all men, 11 percentage points for men without a history of incarceration, and 15 percentage points for men with a history of incarceration. For men with a history of incarceration, the risk of being uninsured went from affecting almost one in two during the pre-ACA period to less than one in three during the post-ACA period.

For all groups of men, the use of health care in emergency department and hospital inpatient settings declined while the use of outpatient care in regular health care

settings increased, although the extent of these changes varies. According to Panel B in Table 4.2, the use of emergency department care fell more greatly for men with a history of incarceration than it did for men without a history of incarceration. Similarly, the use of hospital inpatient care declined to a greater extent for men with a history of incarceration. Trends in the use of outpatient care in regular health care settings also changed the most among low-income men with a history of incarceration. For these men, the likelihood of using care in a regular setting increased by over 13% (from 58.6% to 63.6%) to approximately the same level exhibited by the men with no history of incarceration (63.7%).

Results for trends of health status are less straightforward. According to Panel C in Table 4.2, all groups experienced reductions in their diagnosed levels of asthma and hypertension, but exhibited increases in their diagnosed levels of diabetes. Levels of asthma and hypertension dropped more for men with a history of incarceration. Along the same lines, reported diagnoses of diabetes increased more for men with a history of incarceration than for men who have never been incarcerated. Although somewhat mixed, the results in Table 4.2 provide evidence that low-income men experienced significant changes in their patterns of health insurance coverage, health care use, and health status outcomes. Consistent with targeted efforts to improve these outcomes among people involved in the criminal justice system, improvements in health insurance, health care, and health are concentrated among men with a history of incarceration. To test how the results in Table 4.2 withstand further scrutiny, I turn to the DID analysis.

In line with the descriptive evidence shown in Table 4.2, the results presented in Table 4.3 show that the ACA exhibited unique effects on the health insurance, health care, and health status outcomes of low-income men with a history of incarceration. Table 4.3 reports the regression-based odds ratio estimates for the differential changes in the outcomes of interest between low-income men with and without a history of incarceration. The first column reports this difference in the pre-ACA study period, the second column reports this difference in the post-ACA study period, and the third column reports the difference between the differences observed in the pre- and post-ACA study periods (the "treatment effect").

Model 1 estimates these differences for the outcome measuring the risk of being uninsured. The results show that the odds of being uninsured were 44% greater among adults with a history of incarceration in the pre-ACA study period. In the post-ACA study period, the odds of being uninsured were 24% greater among adults without a history of incarceration. The difference in the odds of being uninsured between adults with and without a history of incarceration therefore fell by approximately 20% from the pre- to post-ACA study period.

To assist with interpretation of the results from Model 1, Figure 4.1 depicts the estimated probabilities of being uninsured for men with and without histories of incarceration in the pre- and post-ACA study periods. Among low-income men in the pre-ACA study period, the probability of being uninsured was 54% for men without a history of incarceration and 73% for men with a history of incarceration. In the post-ACA study period, the probability of being uninsured dropped to 31% and 35% for men with

and without histories of incarceration, respectively. The probability of being uninsured was thus cut in half for low-income men with a history of incarceration as a result of the ACA.

The DID results of Models 2-4 in Table 4.3 showing the effects of the ACA on the use of health care for low-income men provide evidence consistent with the descriptive findings in Table 4.2: recent implementation of the ACA's key provisions exhibited unique impacts on the use of health care among men with a history of incarceration. Relative to their counterparts without a history of incarceration, low-income men with histories of incarceration displayed significantly higher odds of using spontaneous care in emergency department settings as well as significantly lower odds of using outpatient care in regular health care settings during the pre-ACA study period. Such differences in the use of health care between men with and without histories of incarceration declined significantly over the study period due to the noteworthy impact of the ACA on the use of health care among previously incarcerated men.

The estimated probabilities of using care in emergency department settings, hospital inpatient settings, and regular health care settings shown in Figure 4.2 demonstrate further evidence of the ACA's distinct effects among previously incarcerated men. The striking rise in the use of care in regular health care settings among men with a history of incarceration stands out in Figure 4.2. For these men, the probability of using regular health care settings increased by nearly 14% (from 55.3% in the pre-ACA period to 62.9% in the post-ACA period). The probability that previously incarcerated men use health care in either emergency department settings or regular health care settings became

indistinguishable from that of their never incarcerated counterparts in the post-ACA period.

Potentially reflecting the exceptional changes to the trends of health insurance coverage and health care use observed among previously incarcerated men, the implementation of the ACA's key provisions in 2014 is associated with significant declines in health disparities between men with and without histories of incarceration (see Models 5-7 in Table 4.3). As shown in Panel C of Table 4.2 (as well as in Figure 4.3), differences in the odds of being diagnosed with asthma between low-income men with and without histories of incarceration declined by almost 10% from the pre- to the post-ACA study period. In line with these results, the predictive margins displayed in Figure 4.3 show that the size of the drop in the probability of having asthma among formerly incarcerated men is twice that for men who have never been incarcerated. The ACA exhibited strong, and somewhat similar, effects on the prevalence of hypertension among low-income men with and without histories of incarceration. For both groups of low-income men, the probability of having hypertension declined by almost 20% from the pre- to the post-ACA study period.

Discussion & Conclusion

Individuals enter jails and prisons in substantially worse health than their counterparts in the general population. Nevertheless, individuals behind bars experience improvements to their health status during incarceration. The health benefits associated with incarceration are fleeting, however, as most individuals leaving jail and prison lack health insurance coverage, lose access to health care, and face exacerbated health issues

upon their release. Despite a shared consensus on these empirical findings on the relationship between health and incarceration, there is less agreement about its causes. Some scholars have argued that the provision of health care to individuals who would otherwise be without it plays a key role in the paradoxical health benefits associated with incarceration (Patterson 2010). Our ability to explore the effects of health care on the health benefits of incarceration, however, has been severely limited because formerly incarcerated adults have been systematically deprived of health care outside the gates of correctional facilities.

Since the mid-20th century, U.S. healthcare policies have required working-age adults to access health insurance through labor market, marriage, and family institutions (Seccombe 1993; Meyer and Pavalko 1996; Currie and Madrian 1999). These policy arrangements helped employed, married, and parenting adults gain coverage through the benefits derived from their institutional attachments, but offered unemployed, unmarried, and childless adults little protection against the risk of being uninsured. As the pathways expected to provide access to coverage are themselves highly stratified, the risk of being uninsured has been particularly high for men with histories of incarceration. The intersection between individuals outside of traditionally insured groups and those who have spent time in jail and prison is so large, in fact, that over one-third (35%) of adults newly eligible for Medicaid under the ACA are estimated to have had prior involvement with the criminal justice system (DiPietro 2103).

By providing adults with a new pathway for obtaining health insurance decoupled from their labor market, marriage, and family attachments, the ACA has dramatically

increased coverage among traditionally uninsured groups, including men, people of color, and individuals with fewer years of formal schooling (see Chapter 2). These changes in health insurance status have correspondingly led to substantial advancements in the use of health care and significant improvements in measures of health status (see Chapter 3). Given how individuals outside of institutionally unattached groups overlap with the population of adults entangled in the criminal justice system, I conducted this study to explore the effects of the ACA on outcomes related to health insurance, health care, and health status among men with a history of incarceration.

Results from this study demonstrate that the ACA is making a significant and substantive difference on the level of health insurance coverage among low-income men, especially those with a history of incarceration. Among low-income men without a history of incarceration, the probability of being uninsured fell by over 40% (from 54% in the pre-ACA period to 31% in the post-ACA period). For low-income men with a history of incarceration, the probability of being uninsured declined by more than 50% (from 73% in the pre-ACA period to 35% in the post-ACA period). Such changes in the use of health care were especially striking among men with a history of incarceration. For these men, the probability of using regular health care settings increased by nearly 14% (from 55.3% in the pre-ACA period to 62.9% in the post-ACA period), reaching a level greater than that of men without histories of incarceration. Most importantly, low-income men experienced significantly better health outcomes in the wake of the ACA. Men with and without histories of incarceration both experienced significant declines in their levels

of asthma and hypertension diagnoses. Changes in observed health outcomes were larger and more profound among men with histories of incarceration.

In many ways, the unique and profound benefits of the ACA experienced by low-income men with histories of incarceration is not surprising. Previously incarcerated men are more likely to be newly eligible for health insurance through the ACA and to receive assistance with the process of enrolling in a new coverage plan. Estimates vary, but individuals released from jail and prison made up 17-35% of all uninsured adults newly eligible for health insurance under the ACA (DiPietro 2013; Regenstein and Rosenbaum 2014). In an effort to help these uninsured adults realize their entitlement to health insurance coverage, the U.S. Department of Justice has identified the ACA as a tool to connect reentering adults with health care in their communities and an increasing number of jurisdictions have begun adopting this strategy in their jail and prison release programs. Whereas only 57% of ACA-eligible adults are projected to enroll in available health insurance programs under regular circumstances (CBO 2012), directed outreach efforts—like those taking place in criminal justice settings nationwide—are predicted to increase potential enrollment to 75% (Holahan and Headen 2010).

Formerly incarcerated men are also more likely to have significant unmet health care needs. Compared to their counterparts with no history of incarceration, previously incarcerated men exhibit higher and more severe levels of chronic illness, infectious disease, mental health issues, and substance abuse and dependence problems (Wilper et al. 2009; Schnittker et al. 2012; Maruschak et al. 2015; Bronson and Berzofsky 2017). With a constitutional right to health care behind bars, the majority of inmates with health

problems report receiving prescription medication or some other form of medical treatment during their incarceration (Mallik-Kane and Visher 2008; Maruschak et al. 2015). Such widespread use of health care, however, has typically ended at the gates of correctional facilities as the majority of adults released from jail and prison lacked health insurance coverage and, hence, lost their access to care in the weeks following their release prior to the passage of the ACA (Mallik-Kane and Visher 2008).

By investigating the effects of the ACA on outcomes related to health insurance, health care use, and health status, this study adds to our understanding of the association between incarceration and health. A growing body of work provides evidence on the relationship between incarceration and health but less is known about the underlying mechanisms that connect them. Some scholars argue that the provision of health care provided by the criminal justice system is the primary factor responsible for the paradoxically positive health effects of incarceration observed among inmates behind bars. Until now, however, the ability to test the interrelationships between health care, health, and incarceration has been effectively impossible.

Table 4.1: Descriptive Statistics of Control Variables in the Pre- and Post-ACA Study Periods. Low-Income Men aged 18-64, NSDUH 2009-2012 and 2014-2016.

Concept	Variable	Description	Coding scheme	Pre-ACA %	Post-ACA	
History of incarceration	Incarceration	Does the respondent report any history of incarceration?	0 = no			
			1 = yes (Ref)	36.1	34.1	**
Race/Ethnicity	White	Is the respondent non-Hispanic White?	0 = no			
			1 = yes (Ref)	48.8	46.8	*
	Black	Is the respondent non-Hispanic Black?	0 = no			
			1 = yes	16.7	17.7	
	Latino	Is the respondent of Hispanic/Latin origin?	0 = no			
			1 = yes	27.3	27.0	
	Other	Is the respondent one of the following: non-Hispanic Native American	0 = no			
		or Alaskan Native, non-Hispanic Native Hawaiian or other Pacific	1 = yes	7.2	8.5	***
		Islander, Non-Hispanic Asian, or Non-Hispanic more than one race?				
Age	18 to 25	Is the respondent 18-25 years old?	0 = no			
			1 = yes	28.4	26.8	**
	26 to 34	Is the respondent 26-34 years old?	0 = no			
			1 = yes	21.2	21.1	
	35 to 49	Is the respondent 35-49 years old?	0 = no			
			1 = yes	28.9	27.8	
	50 to 64	Is the respondent 50-64 years old?	0 = no			
			1 = yes (Ref)	21.4	24.3	**
Education	Less than HS	Is the respondent's highest level of education less than high school?	0 = no			
			1 = yes	29.2	27.2	**
	HS	Is the respondent's highest level of education high school or GED equivalent?	0 = no			
			1 = yes	36.8	36.1	
	Some college	Is the respondent's highest level of education some college?	0 = no			
			1 = yes	23.2	26.6	***
	College +	Is the respondent's highest level of education college or more?	0 = no			
			1 = yes (Ref)	10.7	10.1	
Government assistance	< 100% FPL	Is the respondent's household income below the Federal Poverty	0 = no			
		Line (FPL)?	1 = yes	40.2	43.8	***
	100 - 199% FPL	Is the respondent's household income greater than 100% of the FPL	0 = no			
		and less than 199% of the FPL?	1 = yes	59.8	56.2	***
	Welfare	Did the respondent participate in any of the following programs in the	0 = no			
		past year: welfare or Temporary Assistance for Needy Families	1 = yes (Ref)	38.8	41.8	**
		(TANF), Supplemental Security Income (SSI), or Supplemental				
		Nutrition Assistance Program (SNAP) (food stamps)?				
Health status	Chronic illness	Did the respondent report having any of the following health	0 = no			
		conditions in their lifetime: chronic bronchitis, cirrhosis of the liver,	1 = yes (Ref)	11.2	11.0	
		heart disease, hepatitis, or HIV?				

Two-tailed adjusted t-test (Probability > t): $^{*}p<.05$, $^{**}p<.01$, $^{***}p<.001$

Note : the numbers and percentages reported are based on sample weights.

Table 4.2: Self-Reported Trends in Health Insurance Coverage and Health Care Use. Low-Income Men aged 18-64, NSDUH 2009-2012 and 2014-2016.

Panel A. *health insurance coverage*

	Uninsured	
	Pre	Post
All men		
Overall	41.0	29.1 ***
History of incarceration		
Never incarcerated	38.8	27.4 ***
Ever incarcerated	45.8	30.8 ***

Panel B. *health care use*

	Emergency dept.		Hospital inpatient		Primary care	
	Pre	Post	Pre	Post	Pre	Post
All men						
Overall	32.3	31.4	8.7	8.5	60.9	63.3 *
History of incarceration						
Never incarcerated	28.7	27.1 *	6.8	6.7	62.2	63.7
Ever incarcerated	30.3	26.3 **	12.5	11.1 *	58.6	63.6 **

Panel C. *health status*

	Asthma		Diabetes		Hypertension	
	Pre	Post	Pre	Post	Pre	Post
All men						
Overall	31.4	27.6	6.9	7.8	15.8	12.9 ***
History of incarceration						
Never incarcerated	29.7	26.9 *	6.7	7.2	13.9	11.6 **
Ever incarcerated	37.6	31.6 ***	7.1	9.0 *	19.0	15.6 **

Two-tailed adjusted t-test (Probability > t): *p<.05, **p<.01, ***p<.001

Note: the numbers and percentages reported are based on sample weights.

Table 4.3: Regression Coefficients for Models Predicting Outcomes Related to Health Insurance Coverage, Health Care Use, and Health Status. Low-Income Men aged 18-64, NSDUH 2009-2012 and 2014-2016.

	Pre-ACA Difference [a]	Post-ACA Difference [a]	Pre- vs. Post Differences [b]
health insurance coverage			
Model 1			
Uninsured	1.443 ***	1.237 ***	.195 **
health care use	(.033)	(.032)	(.038)
Model 2			
Emergency dept.	1.317	1.263 ***	1.061
	(.032)	(.033)	(.043)
Model 3			
Hospital	1.395 ***	1.324 ***	.081 *
	(.063)	(.031)	(.047)
Model 4			
Primary care	.791 ***	.094 *	1.152 **
health status	(.042)	(.054)	(.054)
Model 5			
Asthma	1.238 ***	1.148 *	1.088 *
	(.043)	(.037)	(.031)
Model 6			
Diabetes	.893 *	.943	1.048
	(.058)	(.061)	(.098)
Model 7			
Hypertension	1.129 **	1.129 **	1.234 ***
	(.046)	(.046)	(.066)

*p<.05, **p<.01, ***p<.001 (two-tailed tests)

[a] Comparing differences in the log odds of being uninsured between adults with (control group) and without (treatment group) institutional attachments for the pre- and post-ACA study periods.

[b] Difference-in-differences: comparing differences in outcomes for the pre- and post-ACA study periods among adults with and without institutional attachments.

Figure 4.1: Estimated Values Representing the Probability of Being Uninsured among Low-Income Men Before and After the Implementation of the ACA.

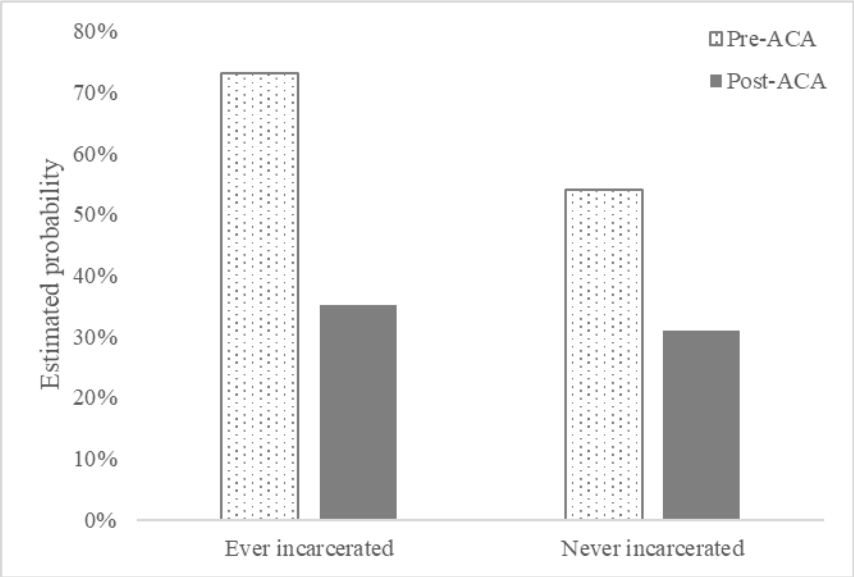


Figure 4.2: Estimated Values Representing the Probability of Using Health Care across Different Settings among Low-Income Men Before and After the Implementation of the ACA.

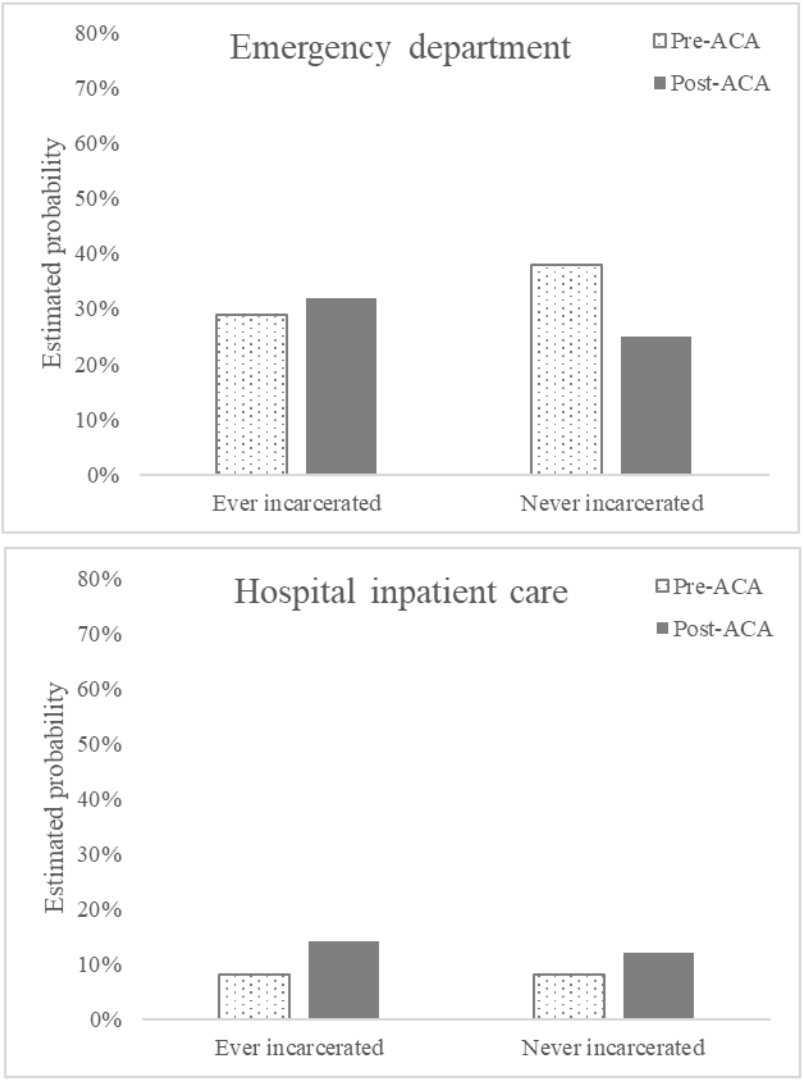


Figure 4.2, Cont.

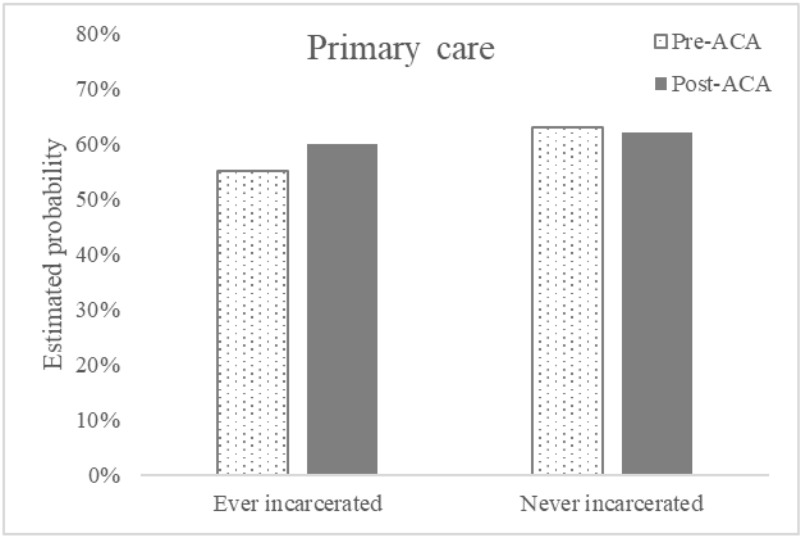


Figure 4.3: Estimated Values Representing the Probability of Having a Diagnosis of Asthma, Diabetes, or Hypertension among Low-Income Men Before and After the Implementation of the ACA.

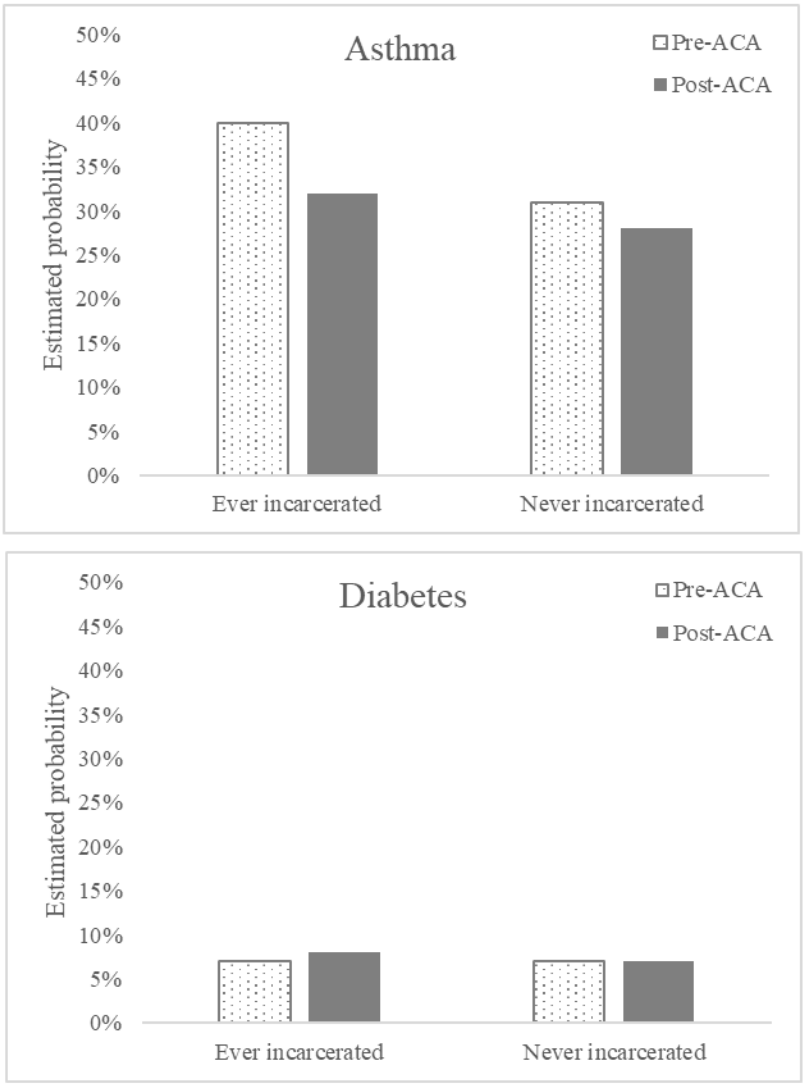
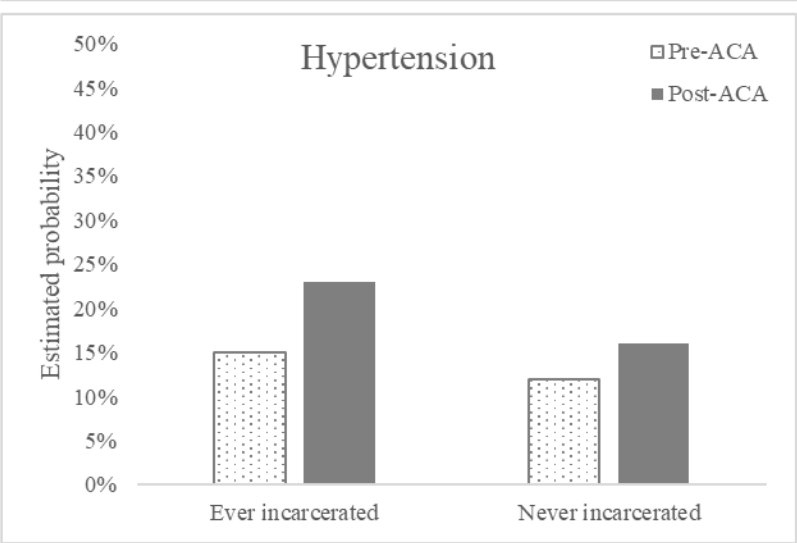


Figure 4.3, Cont.



Chapter 5:

Conclusion

The ACA made the most dramatic change to the U.S. healthcare system in the last half century. This unprecedented change qualified nearly 30 million adults—approximately 75% of all adults without health insurance—as eligible for partially or completed subsidized health insurance, as of January 1, 2014 (Garfield et al. 2014). According to the three substantive chapters presented here, the ACA produced a number of desirable outcomes in just the first three years following implementation of its key provisions. Examining whether and how the ACA changes the relationship between health insurance and institutional attachment—that is, the effects of being employed, married, or parenting—among adults, Chapter 2 documents the rise in coverage experienced by traditionally uninsured adults. Identifying the extent to which such increases in health insurance coverage translate into improvements in health care and health status, Chapter 3 traces the transition from acute care in emergency departments to routine care in regular health care settings that otherwise medically-underserved groups made since the passage of the ACA. Honing in on the overlap between traditionally uninsured groups and those involved in the criminal justice system, Chapter 4 shows the unique effects of the ACA for men with histories of incarceration.

The results from this dissertation have important theoretical, methodological, and policy implications. Theoretically, this work expands our conceptualization of the underlying determinants associated with health to include institutions. In general,

researchers account for a combination of material, psychosocial, behavioral, and biological factors to explain health outcomes. These approaches can help us understand why some people have better or worse health than others when compared within societies, but they are of more limited use when we fail to consider how important individual- or household-level causes linked to health vary in their frequency or in their effects across institutional contexts (Olafsdottir 2007; Beckfield et al. 2015). Thus, our existing understanding of social inequalities in health may be predicated on a specific distribution of the social determinants of health and a set of material, psychosocial, behavioral, and biological factors that vary accordingly. By introducing a dramatic policy change to the U.S. healthcare system that separates access to health insurance and, hence, health care from the institutional attachments of adults, the ACA provides a historic opportunity to consider the institutional determinants of health and draws attention to the centrality of institutions for our knowledge of health inequalities.

An important limitation related to this contribution, specifically, and to this dissertation in general, is that the data used in this study lacked important information that would allow me to fully account for the many material, psychosocial, behavioral, and biological factors used to explain health outcomes. My inability to account for these measures with the NSDUH data, however, does not fully undermine my observed findings. The DID framework used in my analyses removes effects that could result from permanent differences between the treatment and control groups as well as effects of changes over time in the treatment group unrelated to the intervention. This

methodological technique therefore substantially reduces problems associated with omitted variables in cross-sectional analyses.

Methodologically, this study draws attention to the ACA as an important policy intervention for studying how stratifying institutions layer onto one another to create inequalities. Here, I demonstrate how the ACA remediates the effects of institutional stratification for outcomes related to health insurance, health care, and health status. The historic change in U.S. healthcare policy brought on by the ACA enables researchers to study a number of other outcomes potentially affected by this unprecedented shift in policy. Future research should continue investigating outcomes related to health and should also expand to investigate how the ACA influences outcomes outside of health.

From a policy perspective, this research provides an important snapshot of the short-term impacts of the ACA that may endure in the long run. The analyses in this dissertation make use of the most recently available data from the NSDUH, accounting for the first three years since the implementation of the ACA's key provisions in 2014. By the end of this period (December, 2016), about 12% of adults remained uninsured (CPS 2017). According to projections from the Congressional Budget Office (CBO), the share of adults without health insurance is expected to stay at this level in the years ahead (CBO 2018). Even as the current political climate casts uncertainty over the ACA's future, results from this study remain critically important because the ACA builds on, rather than eliminates, the traditional structuring of health insurance.

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